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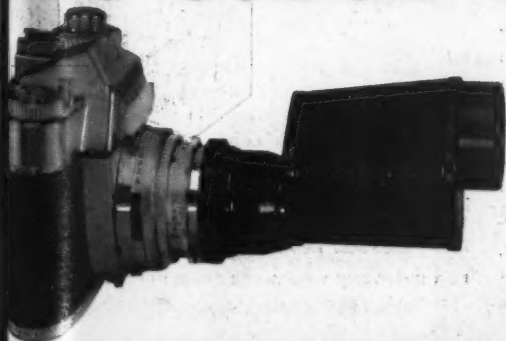
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Number 9 of a series Great photographers of the world Wingate Paine



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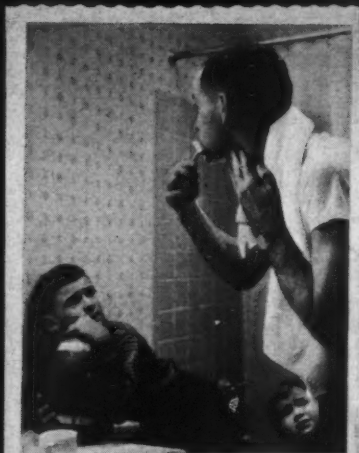
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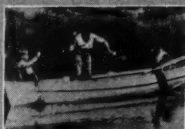
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modern PHOTOGRAPHY

MAY 1960, VOL. 24, NO. 5

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SUBSCRIBERS: Send subscription inquiries and address changes to Circulation Manager, MODERN PHOTOGRAPHY, 33 West 60th St., New York 23, N. Y. Give old and new address, including zone number, if any. Enclose address label from last issue and allow five weeks for change to become effective. POSTMASTER: Send Form 3579 to MODERN PHOTOGRAPHY, 33 West 60th St., New York 23, N. Y.



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ASA 400

Coffee Break WITH THE EDITORS

THIS MONTH'S COVER . . .

. . . illustrates two technical stories and one picture story from this month's mixed bag. Upper left, the heart of a Mecablitz 102 is laid bare—Charles Hellman has been dissecting many kinds of electronic flash batteries, and on page 78 he gives a comparative report on their anatomies and functions.

The two children are smiling at their father, Art Director Ernest Scarfone, who is as much at home with a camera in his hand as with a drawing pencil. Other MODERN editors have risked displaying their pictures (see page 66) to the no doubt critical eyes of their readers.

The new fashion in single-lens reflexes is the monocular look, which means that focal lengths will be longer this year. The monocular may not look the height of elegance, but it can be slipped on in a moment and can be worn without misgivings for long focal-length occasions. Here a Voigtlander Bessamatic wears an Astronator 6X: for further details, see page 62.

A QUESTION OF QUESTIONS . . .

If you have any technical questions you'd like us to answer, would you please write, not phone them? We've found that questions by phone always seem to arrive at some critical moment, e.g. when a printer's deadline has to be met in fifteen minutes. We're still as happy as ever to answer (or try to answer) any questions you like to throw at us—but if you send them by mail, we can then arrange our time so as to go into them thoroughly and make our deadlines!

WORDS AND PICTURES . . .

Mike Matzkin's article on movie titling (see page 100) has set us thinking about what's happened to commercial movie titles in recent years.

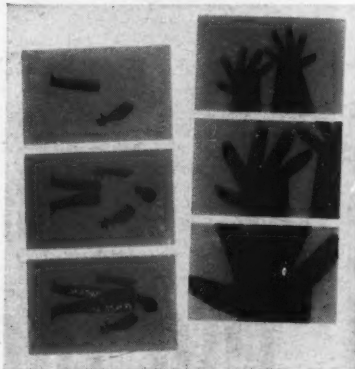
If our memory serves us right, it was in the thirties that movie titles started becoming fancy. Nothing extravagant yet, mind you—just ornamental lettering on a background design, such as a two-dimensional impression of the New York skyline, or dancers amid streamers, all in gray tones.

Then came the really revolutionary step: the titles got movement. Remember the time when every other movie had its titles inscribed on the pages of an encyclopedia-sized book, which was turned by a visible or invisible hand? The last variant we saw of that was the illuminated manuscript, in the best 15th century letter-

ing, which introduced Olivier's *Richard III*.

More recently, the old design background has been animated and hepped up, so as to create a strong mood. The first example that springs to our mind is the silhouetted and dismembered corpse of *Anatomy of a Murder*, which performs a danse macabre to Duke Ellington's music. Another fine example comes from Hitchcock's *North by Northwest*, whose angular titles sweep in and out on all sides and finally dissolve into the perspective lines of the UN Building.

No doubt the biggest and most popular invention in modern movie titling is the superimposition of titles



SAUL BASS & ASSOCIATES
Anatomy of a movie title.

on action scenes. At one time, nearly every movie we saw seemed to open with a long series of traveling shots, either of a car or from a car, which took the detectives to the scene of the crime, or the victim to hospital, or a lover to a rendezvous, all the way from "Columount Brothers presents" to "Directed by Joe Smith." The titles of Orson Welles' *Touch of Evil* had a traveling shot to end all traveling shots: from a close-up of a bomb being placed in the trunk of a car, the camera cranes up high in the air, waits until the driver gets in, and then follows the car across several busy blocks. How was it done? We'd guess by helicopter, but you'd better ask Orson Welles.

One wild development of action-behind-titles is action-before-titles. The stock example of this is David Lean's *The Sound Barrier*, in which we're shown a two- or three-minute sequence of a Battle of Britain dogfight before any titles appear. An even earlier example comes from the ever-inventive brain of Orson Welles. His

(Continued on page 8)



*now...the famous NIKKOR f1.4 with automatic diaphragm
for the NIKON F automatic reflex*



Here's great news! The famous Nikkor f/1.4—acknowledged to be the world's finest high speed lens—is now available with instant-reopen automatic diaphragm for the new Nikon F Automatic Reflex.

The diaphragm of the new 58mm Auto-Nikkor f/1.4, internally coupled to the camera, is always wide open for focusing and viewing. At the instant of exposure, it automatically closes down to the pre-selected 'taking' aperture—then, instantly, it reopens to f/1.4, in readiness for the next picture. There is nothing to re-set, nothing to wind, no fumbling, no fuss.

Never before has a 35mm reflex been offered with a lens of such speed—much less, a lens of such quality. Your very first

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COFFEE BREAK

(Continued from page 6)

Macbeth opens with a lengthy sequence of the three witches on the blasted heath, and we've just about forgotten the fact that there have been no titles when suddenly "MACBETH by William Shakespeare" flares across the scene.

Action-before-titles can be misleading—we once mistook the opening of a Mickey Spillane movie for a documentary. But our only big complaint against today's ingenious titles is that, in some of the movies we've seen, the ingenuity could be better used in what comes after.

MORE FLEXON AND BIOTAR . . .

Our notice re Flexon and Biotar lenses which appeared in "Behind the Scenes," April issue, could create the wrong impression. Latest information from the U.S. representatives of the company is that Zeiss is going to make a 50mm focal length lens in addition to the 58mm Biotar lens, which will continue to be manufactured. The Flexon will also have the high Biotar lens quality, states the importer—but Flexon lenses for Exaktas will not be available for a long time.

IMITATION IS . . .

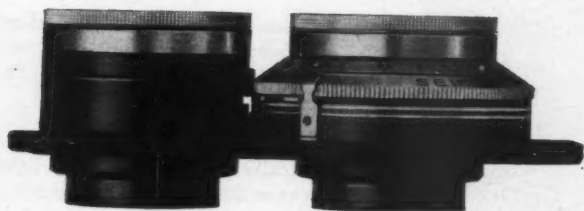
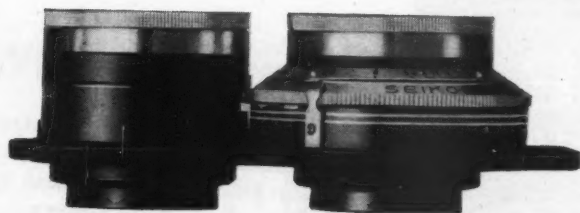
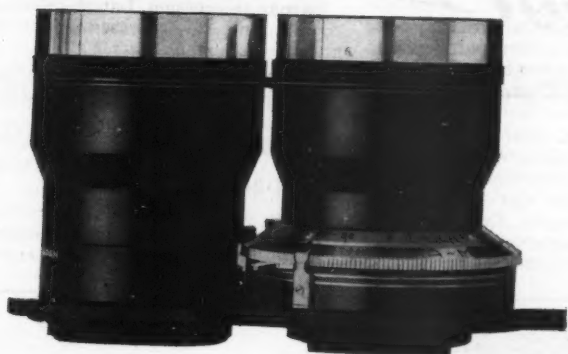
"Modern Tests" must be somewhat of a hit with other editors as well as our own readers. We notice with some amusement a rather blatant attempt by another publication to copy the exact format and style of this monthly feature.

While imitation is certainly the sincerest form of flattery, we'd be far happier if they had completed the job and given us a credit: "Idea and layout, courtesy of MODERN PHOTOGRAPHY."

THOSE OTHER 'SIXTIES . . .

It's now a century since the Civil War began, which pretty clearly makes it history, as few of us alive today can actually remember it. Well, the next best thing to a memory is a photograph—and so our contemporary, the *National Photographer*, in observance of the centennial, is organizing a search for photos of the Civil War period.

You never know what romantic relics may be hidden away in your attic, bottom drawers, family albums or other corners of your house—so why not take a look through them now, and see if you have any interesting pictures of life in the early 1860's. If so—and they need not be directly concerned with the Civil War—the *National Photographer* will be very happy to receive them. (Address: c/o Professional Photographers of America Inc., 152 W. Wisconsin Ave., Milwaukee 3, Wisc.) One note of realism with the romance: please, if you possibly can, give information about the photographer, date, place, camera, exposure.



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LETTERS TO THE EDITOR

Readers We Love to Gain

Sirs:

In your January 1960 issue, pages 10-11, I read the letter to the editor from photographer George T. Brandt of Union, New Jersey, headed, "Readers We Hate to Lose."

This letter stated that he wished to have his subscription cancelled as he is 74 years old and has sold his photo business—so you have lost a subscriber. This letter was interesting to me, as I am 74 years old, working hard in the photo business, especially the months before Christmas, and my first issue of my subscription to MODERN PHOTOGRAPHY came in the January issue. So even though you lost one customer, you have gained another 74-year-old subscriber. . . .

I have read your issues from newsstands, but never received them as a regular subscriber. I will remain a subscriber for the many years for which

I have paid. So even though you hated to lose an old subscriber, I'm sure you will be pleased to know that I will take his place. You may have lost one, but you've gained another.

Monroe, Wisconsin

A. R. Steele

More Lady Photographers?

Sirs:

The Polaroid contest winner, Harold Bergstrom's picture of the ducks (MODERN, February 1960), made me think of the enclosed picture I made in 1953. I enlarged it from a $2\frac{1}{4} \times 2\frac{1}{4}$ negative. I don't know that it is a very good picture, but I have always liked it.

I have enjoyed your magazine for several years. Photography is a wonderful hobby. I only wish I could find other women my age interested in amateur photography. Even women 30 or 40 years younger or older would be fine. After all, I'm only 54 and that is



Mrs. Atwood's ducks.



Mr. Bergstrom's ducks.

too young to take up knitting. Most women seem to leave the picture taking to the boys.

Phoenix, Arizona

Mabel Atwood

Willi Beutler's Formula

Sirs:

About the time the "thin emulsion" 35mm films hit the market, there was

KODAK ZOOM 8 CAMERA (AUTOMATIC f/1.9)



Now...

Check the plus value that's yours in the new Kodak Zoom 8 Camera

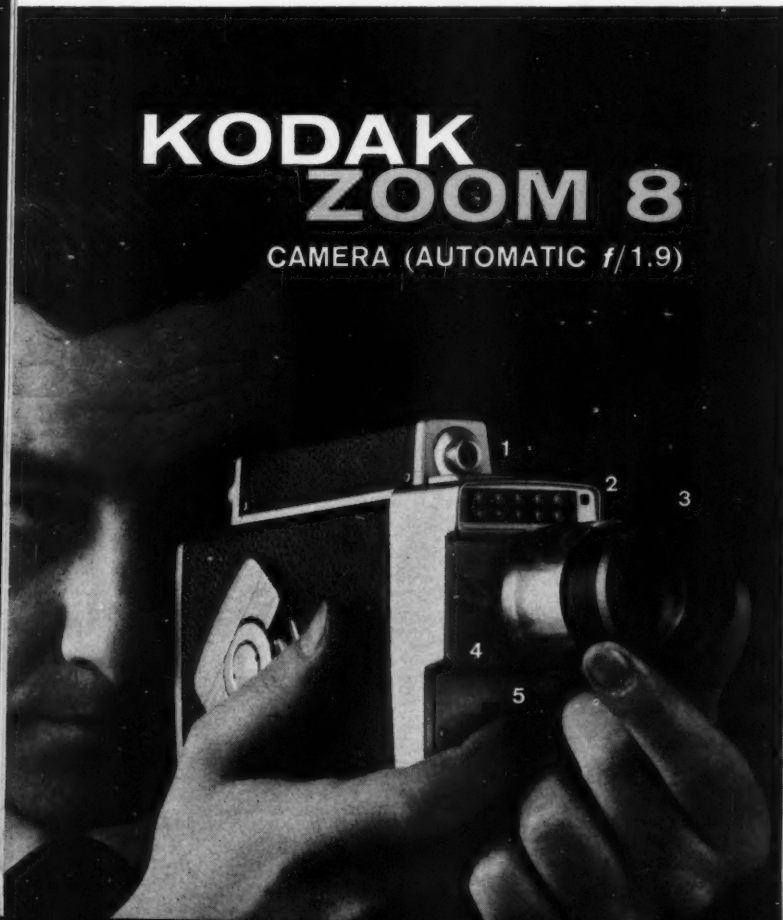
1 Telescopic viewfinder has adjustable eyepiece; shows wide-angle, normal, and telephoto fields and the meter's low-light signal.

2 Sensitive electric-eye control automatically sets lens for any light—indoors or out.

3 Variable-focal-length f/1.9 lens zooms from 9mm wide-angle to 25mm telephoto view. It can also be set specifically for normal, wide-angle, and telephoto shots.

4 Meter dial adjusts for film speeds 5 to 40. It gives you extra control to film special effects.

5 Footage meter resets automatically after film is loaded into camera.



an article published on a "two-solution" German developer.

The name of the man who first used this formula was Willi Beutler. Can you give me data on the developer? Houston, Texas W. J. Sutton

Willi Beutler's 2-solution formula appeared in MODERN, March 1959, page 72, and is reprinted here for the convenience of our readers: Solution A: 10 grams (150 grains) metal; 50 grams (1 oz. 300 grains) sodium sulfite anhydrous (of the purest quality); 1000 cc (32 oz.) water (boiled). Solution B: 50 grams sodium carbonate anhydrous; 1000 cc water (boiled).

To use, add 50 cc (1.5 oz.) of A and 50 cc of B to 500 cc of water. Develop low-speed films at 65°F (18°C) for 7 to 10 min. according to gradation. (From Hans Windisch' The Manual of Modern Photography, Heering Publications, Vaduz, 1956, p. 91.)—ED.

Boiled Hat, Anyone?

Sirs:

I guess this will be letter 3000th in the series inviting Mr. Keppler to eat his hat (see *Grow Your Own 2 1/4 Reflex Camera*, January 1960). Let me elucidate:

No matter how you slice it, Mr. Keppler winds you up with an outfit of very limited value for the iron men. (I admit, the dollar may need vitamins

and tablets to meet this description.) I say limited value because of one tremendous defect—when you use these long focal beauties, you had better devise a system to keep your film plane flat.

In Willoughby's, I bought a beautifully kept 3 x 4 Auto Graflex for \$37. I felt the slow speeds were off. The 8 1/4-in. B&L Tessar was uncoated. Off I went to O. G. Heinemann (camera repairs), and for \$16 I got a new shutter; for \$6.50, a new mirror (one does focus better with a front surface mirror); for \$14, the lens was coated; for \$6.50, the new hoods were easier to handle. Unwisely, I bought a 2 1/4 x 2 1/4 roll film back—\$11. I say unwisely because with the longer focal lengths, the film plane is just not flat. Another \$8 in Olden's for 4 film holders, cut, that is. Oh, yes, O. G. Heinemann outlined the 2 1/4 x 2 1/4 area on the ground glass free.

Next, to a pawn shop on 3rd Ave. for a 10-in. Wollensak Vessar f/6 in a Betax shutter—take off the rear element and you have a 16-in. f/8, and is this baby sharp with an f/22 stop and Tri-X film! Oh, yes. Cost? Six iron men. Another \$1.75 for an "A" board—and what an outfit. Any lens can be added (big or small). Because of that small item, I have built-in double extension.

I invite Mr. Keppler to blow up a big picture with that roll film back. I

promise to supply the towel for him to cry in. I would treasure a small copy of the sight when he proceeds to masticate his topper. I would gladly do likewise for him if there were the slightest chance of him proving his point—remember, \$90 vs. \$200. Anyway, he can try the Rollei trick and put a flat piece of glass in his plane to flatten the film. Standing lenses at 300 paces, I give gladly the first shot and then flatten the opposition. Queens Village, N.Y. E. Robins, M.D.

Dr. Robins' letter was the 3001st. However, Mr. Keppler's hat is still uneaten. His 2 1/4 camera with its smaller film plane holds the roll of film quite flat, even with the 240mm lens. He does admit that he has been using a lens with a rather small opening, but now he plans to try f/4.5 or so. Incidentally, he has a 16 x 20 print of the snail photograph which appeared in the article. It is sharp from corner to corner.—ED.



★ Picture it now—
see it again and again

... enjoy the thrill of ZOOM...plus

The Kodak Zoom 8 puts zoom—plus everything else that's new in 8mm movies—in the palm of your hand.

Zoom with a flick of your wrist. Slide the lens barrel forward and you go from wide-angle to telephoto. Slide the barrel back and you zoom away. Just that easily you add a thrilling new dimension to your 8mm movies.

Automatic exposure control frees your mind to concentrate on the content of your movie. A sensitive electric eye sets the fast f/1.9 lens for you—accurately, constantly—and signals when light is too poor for good movies.

Turret versatility is a bonus feature of the new Kodak Zoom Lens. You can set it for normal, wide-angle, and telephoto shots without taking the camera from your eye.

If you're out to own an excitingly new 8mm camera, ask your photo dealer to show you the Kodak Zoom 8. \$139.50. Field case \$12.

From wide-angle to telephoto without interrupting the action! This is the thrill of zooming with the Kodak Zoom 8 Camera.

Prices are list and subject to change without notice.

The more you know about photography . . . the more you will count on Kodak

EASTMAN KODAK COMPANY, Rochester 4, N.Y.

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PICTURES in a MINUTE

by JOHN WOLBARST

Traveling with a Polaroid Land camera provides special kinds of pleasure, problems, and pain.



It would be silly for me to try to suggest that of all the kinds of cameras on the market the Land camera is the simplest and easiest to carry along on an extended trip, domestic or foreign. There's no denying that the camera is big and heavy, the film bulky (and also heavy), that the picture-in-a-minute process is not ideally suited to the grab-it-and-run tourists who are obliged to get in as many "attractions" as possible in one day.

Despite these obvious problems and disadvantages, the Polaroid Land camera can be a real traveling companion and provide outstanding vacation fun.

First, let's consider the film supply, which is really the biggest problem. No matter where you go in the U.S.A. you should be able to get fresh film, either 200- or 3000-speed, in some community not too far away. If you're traveling by car, a few more rolls won't make much difference in the total load. If you go by air, no matter where, you'll be there so fast that you won't have much time to burn up much en route. Much the same applies to a train or bus trip. However, if you're a hardy type, crossing the entire country by bus with stops every day, you can still buy film in most places.

Once you head for foreign lands the film supply picture changes radically. Canada has the best distribution, and

camera stores in all the big towns should have fresh film. You cannot count on this in any other country. However, Polaroid Corp. has appointed distributors in many foreign countries. The 3000-speed film is not available anywhere overseas, but fresh supplies of 200-speed film are being exported constantly. If you are planning to go abroad with a Polaroid Land camera I'd suggest the following procedure.

Planning for distant supplies

Write to Customer Service, Polaroid Corp., Cambridge 39, Mass., and ask for the latest list of overseas film distributors. Note if any of these are located in or near cities which you expect to visit. If so, write well in advance stating when you expect to arrive and about how much film you think you'll need, and ask them to reserve some. You might ask for a price and even send a deposit in advance. If the distributor is some distance from the towns you expect to visit, you might ask him to ship the film to a local branch of American Express, or Thomas Cook & Sons, to be held for your arrival, or to a local camera store. This involves a bit of letter writing, but it's the only way to be reasonably sure of having film available in quantity where and when you need it.

If you're traveling by ship, and then

KODAK AUTOMATIC 35 CAMERA

Why a full set



This Kodak Automatic 35 is a true automatic-exposure camera. No surplus motions. No two-handed manipulations. One finger does all the work. You just aim and press the shutter release.

You can shoot from dawn to sundown without computing an exposure, without setting an *f*/stop. The electric eye does it for you.

Is this all? No. For unusual scenes, for specific effects, for contrasty lighting conditions, you want the freedom of *personal* control. You want the freedom to choose your shutter speed, meter your subject *selectively*, decide the exposure *yourself*. The controls on the Kodak Automatic 35 provide this all-important personal control whenever you want it.

• You can tune the film-setting dial to a higher or lower index, for color

intend to rent a car for your foreign touring, film becomes much less of a problem. You can take a pretty big supply along without undue exertion.

Having disposed of the logistics, let's get to the basic question: Why take the camera anyway?

Of all traveling cameras, this is the only one which lets you know whether or not you're actually getting the pictures you think (and hope) you're getting. An incredibly high percentage of travelers come home with a distressing number of blanks, over- or underexposed, or otherwise ruined and unsatisfactory films, and they find out the bad news only after the film has been processed—at home.

Win friends in mid-ocean

If you go by ship you'll find the picture-in-a-minute camera is a truly remarkable social instrument. On the games deck, around the pool, in the lounge, in fact anywhere on the ship, it's a conversation piece and a sure way to break the ice with strangers (in any foreign country, too). One word of warning, however. Expect to lose a formidable percentage of your prints to the subjects. (This is true on land, also.) It's a fact that you need nerves of iron to withstand their heart-rending requests for the picture you just shot. Anyhow, if you hate people and don't want to talk to anyone on the

entire voyage, leave your Land camera at home.

I should also like to warn certain other people that this is not the camera for them if they plan to jet around the world in 14 days, or visit 11 famous old-world cities in 17 days with every minute planned beforehand, or "do" the Louvre in 45 minutes, or similar nonsense.

This is a camera to use at your leisure, for your pleasure, with the understanding beforehand that you can't bang out satisfactory pictures in a minute if you won't spare a few moments to stand down and do it right.

What kind of pictures? For ideas I'd like to suggest that you look at my two books, *Pictures in a Minute*, 3rd edition (\$1.95) and *Polaroid Portfolio #1* (\$5.95), available from Amphoto, 33 West 60 St., New York 23, N. Y. Both include a wide variety of scenic and other travel pictures which indicate what can be done with a Polaroid camera.

Your packing list

What equipment to carry? In addition to camera and film here are a few must items: a Polaroid exposure meter (No. 625 is the new model and it's a whiz); a filter kit to fit your model camera; and some extra print coaters (get a small box of these free from Customer Service, Polaroid Corp.).

That will take care of the outdoors.

On a long ship cruise, or if you plan to stop in any places for extended periods, or are just moving to one spot for the entire vacation period, a wink-light and flasher, or a regular flashgun and bounce flash bracket should go with you. The AG-1 bulbs for the wink-light are so tiny they're no problem to take in quantity. For your flashgun I'd suggest using a little adapter which permits you to fire the M5 bulbs. These give about as much light as the No. 5 or Press 25, but they're about one quarter as bulky and much easier to handle.

A line of communications

No matter where or how you're going, don't forget to take along Postcarders so you can make personal picture postcards in a minute and give the homefolks a big thrill.

If you have one of the old style clumsy Polaroid carrying cases, you may want to look at the new ones just now coming into camera stores. They're not inexpensive, but they're extremely compact.—THE END



of controls on this automatic camera?

that's a bit richer or more pastel, whichever you prefer.

- You can meter any part of a subject, then set the lens selectively to favor that part.
- You can set the lens for more shadow detail or less.
- You can favor detail in the distance or in the darker foreground—choose softness or silhouette.
- You can focus swiftly by zones or precisely by footage scale.
- You can go quickly from automatic to manual and flash and synchro flash-fill.
- And always—you can enjoy the convenience of automatic-exposure-when-you-want-it.

Easy to understand, isn't it, why this camera is the expert's automatic? See it at your dealer's soon. Enjoy the convenience of automatic exposure plus the flexibility of full control—for only \$89.50.

CHECK THESE KODAK

AUTOMATIC 35 FEATURES

Fast $f/2.8$ lens—fully automatic setting down to $f/32$.

Takes all popular 35mm films—indexes 10 to 160.

Automatic low-light signal—tells you when to switch to flash.

Drop-in film loading and automatic leader wind-off make loading trouble-free, fast.

Brilliant viewfinder outlines lens field with a bright frame, indicates parallax compensation.

Rapid zone focusing for close-ups, groups, scenes... plus footage scale marked from $2\frac{1}{2}$ feet to infinity.

Single-stroke lever advances film, cocks shutter. Signal in viewfinder reminds you to wind film.



In sun (1) or shade (2) the electric eye meters the light, sets the lens aperture automatically. When the light is too dim, an automatic signal, visible in the viewfinder, tells you to switch to flash.

(3) In contrasty back or side lighting, you can meter your subject selectively, then set for the exposure level you want. It's the control you need, for example, for indoor pictures by available window light.

(4) For flash, you switch to manual control. EV cards tell correct flash exposure settings.

Price is list and subject to change without notice.

The more you know about photography... the more you will count on Kodak

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New Photo Books

THE FIFTY STARS OF THE USA, U.S. CAMERA ANNUAL 1960, edited by Tom Maloney, 364 pages, illustrated. U.S. Camera Publishing Corp., \$8.95*

It seems as if years of plenty are often followed by years of drought as far as the U.S. Camera Annual is concerned. For after a really splendid 1959 yearbook, the same editors have managed to reach a low ebb in taste, selection and caption writing. They have been aided and abetted by extremely poor printing.

The pre-title of this year's annual, "The Fifty Stars" etc., refers, of course, to the fifty states of the United States (there are 50 stars—count them, 50—on the cover). Within, a large section of the book is devoted to picture sections. First, Hawaii, by Ansel Adams (not one of Adams' most inspiration-packed portfolios, alas). Secondly, a section on Alaska with

picture credits divided between Adams, Dimitri Kessel and Arthur Bleich (less effective than the Adams portfolio).

Lastly, there's a 48-stater by various photographers. And some artistic mind has branded each photograph with a white outline of the state in which it was taken—not that the various pictures ever rise above mediocre to average photo-journalistic standards.

Towards mid-book, the annual gets back on a more acceptable track, offering a general picture section, which, if not up to last year's, is head and shoulders above pages 1 through 132. Unfortunately, the picture section is spoiled by poor reproduction. This is followed by a portfolio section from seven different sources, among which the Margeret Bourke-White portfolio could easily have been the most exciting if someone had taken the trouble to find pictures other than the same

old chestnuts which are always hauled out whenever anyone wants to pay tribute to this heroic photographer.

In the second photographer portfolio, the annual has a find. Mario Giacomelli's pictures of the pilgrims at Lourdes are magnificent, although this young photographer seems to believe that graininess and blur are necessary for the atmosphere of his pictures. (They aren't.)

Joe Scherschel's portfolio is good photojournalism, but is it good photography? The next portfolio, involving the winners of the 38th Art Director's Club awards, is rather dullish. Rene Burri's portfolio of Argentine gauchos is effective, Bradford Washburn's Swiss Alps shots are rather commonplace when you think of the many stupendous European pictures you've seen of the same terrain, Carter Jones' children pictures are charming but rather more like snapshots. His one really good picture of a child on a swing watched by a large white dog is spoiled by blur.

Three portfolios of photographers deceased in 1959, Dan Weiner, Lisa Larsen and Paul Outerbridge, end the annual. Weiner's portfolio shines like a jewel because the choice of the Larsen and Outerbridge pictures has been second rate.

The book is interlarded with a fantastic number of half-page rough paper text pieces, of which the numer-

BROWNIE AUTOMATIC

MOVIE CAMERA, *f*/2.3

Fully automatic



electric eye
handles exposure control
completely...

Indoors or outdoors

With the 8mm Brownie Automatic you set the film speed dial when you load. From then on, you just aim and shoot. The sensitive electric eye automatically keeps your exposure on the nose.

And you don't have any focusing worries either. The pre-set *f*/2.3 lens keeps everything sharp from a few feet away to the horizon.

Meter signal saves film. When the light gets too dim for good footage, the electric eye signals you to stop. But if the scene is important, you can go ahead

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ous articles on the 50 states are the most useless and the single Peter Stackpole article on the Metropolitan Museum of Art Photo Show the best.

—H.K.

PHOTO MAXIMA III, directed by Hope Saunders, 101 black-and-white photographs by 76 photographers, 88 pages. Photo Maxima, \$5.95*

Photo Maxima III is a photographic salon in book form. The pictures were solicited as they are for a salon and entries (no more than four prints) had to be accompanied by a fee (\$3).

Judged in this context, *Photo Maxima III* is a perfectly satisfactory little book. The photographs are superior in taste and content to those usually encountered at amateur exhibitions or at camera clubs.

However, as a picture book, it falls far short of the standard set by the American and European annuals, particularly in layout and in reproduction.

—P.C.

ITALIAN VILLAS AND PALACES, by Georgina Masson. 193 gravure plates, 6 maps, 244 pages. Harry N. Abrams. \$17.50

Again, a magnificently produced over-size (11¼ x 12½) book of photographs from the firm of Harry Abrams. The author has divided her book into five geographical sections. The text on various colors of paper divides the five

picture sections and sketches the history and the architectural detail of the many Renaissance structures which have fascinated Georgina Masson, Italian correspondent of the *Architectural Review*.

The photographs which the author modestly says were made with her "25-year-old Rolleiflex" show both overall views of the palaces and villas and details of their furniture, murals, statues, gardens, etc. Miss Masson used her artificial lighting well and seemed always to have chosen the proper time of day for her outdoor shots. A book that you will return to often.—J.B.

FLORENCE, introduction and commentaries by Sylvia Sprigge, photographs by Kurt Otto-Wasow. 67 pages, 24 color photographs. Studio Publications, Inc., N. Y. \$5.95

Sylvia Sprigge has attempted to rush quickly through about 2,800 years' history in her introduction to *Florence*. We were left somewhat dazed in the branches of the Medici family tree. Her commentaries on the photographs are somewhat better organized.

The color photographs cover various churches, statues, Tuscan farm scenes, museums, and details from paintings (a dismembered section of Botticelli's *Birth of Venus*, for one). The photos are lamentably lifeless and postcard-

ish, with the exception perhaps of one market-place scene. The text continually points out interesting sights, aggravatingly just out of view.

It is too bad that the author and photographer seem to consider Florence a city of the dead. The pictures would have been much livelier had its people, occupied in their daily living, been included. They are Florence's true spirit and the direct inheritors of its past.—L.H.

SAN FRANCISCO, a profile with pictures, by Barnaby Conrad. 228 pages, many illustrations. Viking. \$6.50

Barnaby Conrad—erstwhile matador, painter, pianist, secretary to Sinclair Lewis, sometime author of an endless series of books on bullfighting—has torn himself away from his restaurant, El Matador, long enough to put together what he calls "a flagrant, unabashed valentine" to his favorite city, San Francisco.

Well, it's my favorite city, too. And I feel the lady is worthy of a better valentine. This 228-page missive could have been penned by a native of Los Angeles, Chicago, or New York after a three-week trip to Baghdad-by-the-Bay. It has none of the ardor of true love about it. It's like any picture book about any city.

The photographs were chosen from
(Continued on page 16)

lens control—but only \$77.50

and shoot even though the footage will be underexposed.

Without exposure worries, you're free to give your full attention to the creative side of movie-making. And you're always ready to shoot action no matter how fast it breaks.

So, for automatic movie-making at an amazingly low price, ask your dealer to show you the Brownie Automatic Movie Camera—soon. It's one of the greatest movie values ever at only \$77.50. Field case, \$6.50.

Prices are list and subject to change without notice.

The more you know about photography... the more you will count on Kodak

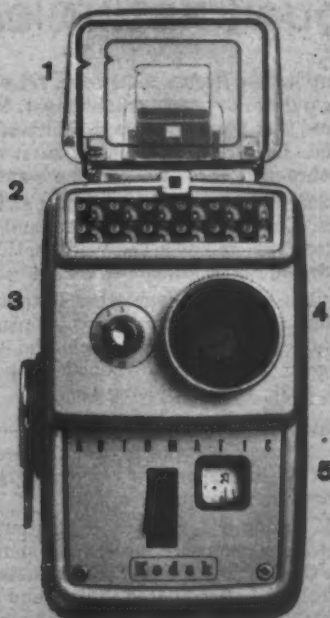
1 Multi-frame finder shows fields for standard lens and telephoto and wide-angle converter lenses.

2 Electric eye constantly, accurately adjusts lens aperture to changing light, signals when light becomes too dim.

3 Dial adjusts automatic exposure control system for film speeds 5 to 40.

4 Fine Kodak Cine Ektanar f/2.3 Lens takes crisp, sharp movies, accepts wide-angle and telephoto converter lenses.

5 Footage meter resets automatically after film is loaded into camera.



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NEW BOOKS

(Continued from page 15)

many sources—from press associations to Ansel Adams. The result is a hodge-podge both in attitudes toward the city and photographic techniques. Mr. Conrad hedges the podge further in his text and general organization, where he tries to include something for everyone, much in the order of Lowell Thomas and one of his Cinerama productions. The result is confusion and lack of character.

Conrad's text style is pleasant, though giddy. He sounds like a charming fellow. But I'm afraid this is one valentine that isn't going to be looked at fifty years from today.—J.B.

1,000 PHOTO QUESTIONS ANSWERED BY EXPERTS, edited by Robert L. McIntyre. 248 pages, 32 illustrations. Ziff-Davis Publishing Co., \$4.95*

Can you imagine a book composed of 1,000 questions on every conceivable topic of photography with practically no arrangement and no index to help you find anything? You need imagine no more. It's here.

There are approximately 24 chapters into which the questions and answers are pigeonholed—Which camera; Lenses and shutters; Films, black-and-white and color, etc. Un-

fortunately, the pigeons sometimes get into the wrong holes and questions such as "How much does it cost to shoot in color?" appear in the "Which Camera" chapter.

A question and answer department appearing in Ziff-Davis's *Popular Photography* magazine has been intelligent, to the point, and well answered. But the information contained in this book would scarcely interest anyone. One example (on page 1) should suffice. "Question: What cameras are there for the fan who wants to learn more about photography than he can with a simple outfit?"

"Answer: More advanced camera types include the subminiature, the 35mm miniature, the folding camera, the reflex and the press and view camera."

Now that's telling them.

The picture section is totally unbelievable in taste and captions when you realize that this book comes from the same people who each year produce the excellent *Popular Photography Annual*. The caption under the first picture—of a little girl and her cat—reads: "Most picture making is still done out-of-doors, and a wide variety of camera types can be used for excellent photographic results."

Well, we certainly can't call them wrong with *that* answer.

Coming back to the questions, we note that the answerers have neatly

sidestepped any answers which might involve specific product names. Thus none of the answers under "Which Camera" really say which camera.

We might feel less cheated by this book if the jacket didn't specify "a ready reference guide to the hard to find answers all amateurs, advanced amateurs and professionals must have to solve those baffling photo problems."

—H.K.

PETER GOWLAND'S GUIDE TO ELECTRONIC FLASH, by Peter Gowland. 120 photographs and 7 charts, 128 pages. Amphoto, New York. \$1.98*

In this new book, Peter Gowland discusses the basics of electronic flash photography as he himself uses it. Twelve chapters are devoted to such aspects of electronic flash as basic lighting, bounce light, multiple flash, black-and-white and color technique, tips on how to buy an electronic flash unit, how to shoot action, and electronic flash synchronization.

FUJICA CAMERA GUIDE, by Joseph Cooper. 112 pages, profusely illustrated. Universal Photo Books. \$1.95*

With all the vile paperback camera guides around, it's a pleasure to report that Cooper's is informative, intelligently written and highly useful to the Fujica owner. He obviously is not a man to write a guidebook before

There's no stopping you with a KODAK RETINA CAMERA

Kodak Retina Reflex S Camera, f/1.9—for swift action—for pure color—for available light. Your lens is a fast 50mm f/1.9. Shutter offers a choice of speeds, to 1/500 second. Lens control is quick, sure: match pointer to exposure-meter needle and f/stop is automatically right!

Focus and view life-size, always at full-aperture brilliance. Change focus or aperture, and twin pointers on the lens ring tell you the field depth. Change shutter speed, and f/stop adjusts to match.

Switch to any of four other Retina lenses, 28mm to 135mm, and you still enjoy wide-open viewing, precise rangefinding, automatic diaphragm stop-down, automatic exposure control. Kodak Retina Reflex S Camera, f/1.9, \$235; with f/2.8 lens, \$199.50.

Kodak Retina IIIS Camera, f/2.8—widely capable—easy to own. All the luxury features of the Retina Reflex S—unchanged for the photographer who prefers a rangefinder-viewfinder system.

All Retina S Lenses couple automatically with the rangefinder, exposure meter, and shutter linkage. You have the full freedom and ease of meter-linked exposure control, with coordinated shutter and aperture settings. With f/2.8 lens, \$157.50. With 50mm f/1.9 lens, \$193.

The more you know about photography
... the more you will count on Kodak



studying and using the camera extensively. Flash, flood, available light, films and filters as well as camera operation are fully covered. Cooper, primarily a technician, only runs into trouble when he attempts to render "principles" of composition for four pages toward the end of the book. The one-page summary of darkroom technique could also have been eliminated.

The quality of the printing and the reproduction of drawings and photographs is far superior to those we have come to expect from these guidebooks. The display photographs, really unimportant in such a manual, are rather amateurish.—H.K.

EDITING YOUR COLOR MOVIES, by George W. Cushman. 96 pages, illustrated. Camera Craft Publishing Co. \$1.95*

Mr. Cushman has written a workmanlike little book for the beginning editor. He covers the essentials under various headings—splicing, the editor and the camera, editing a simple scene, establishing shots, and learning to think cinematically.

Slightly more advanced are chapters on continuity, creating movement, parallel action, editing color film, and editing for sound.

It is the chapter on editing for color that we find a bit unfortunate. In a book aimed at the film maker who uses

color, only a two-page chapter deals specifically with this area. Some of the information is good—some of it, quite stultifying. Mr. Cushman is not one for experimental editing.

The author advises the amateur to avoid, at all costs, intercutting black-and-white with color. Grudgingly, he admits that toning the monochrome film might help. If nothing else, such an attitude can dissuade the amateur from ever experimenting.

We also found the illustrations hardly the type that would inspire the amateur. It seems a common failing of books on amateur motion pictures that the illustrations fall far short of being acceptable.

However, Mr. Cushman has written a book that provides the amateur with a good set of working rules—rules that we hope the amateur will endeavor to use as a guide rather than an unbreakable code.—M. A. M.

TV AND FILM PRODUCTION DATA BOOK, by Ernest M. Pittaro. 448 pages, many illustrations. Morgan & Morgan, Inc. \$6.95*

This is not a book for the home movie maker—unless he has ambitions toward either professional TV or motion picture work. Also, it is not a book to be read as one would read a text. Rather, it is a source book, containing specific information on various aspects

of television and of motion pictures.

Among the many subjects covered are TV equipment standards, film standards, lighting, animation technique, sound recording, high-speed cinematography, filters, lenses, and exposure data.

One of the most useful sections for the man faced with day-to-day problems contains tables covering field of view for various 16 and 35mm motion picture camera lenses, depth of field, footage, frame, time, and projection charts and tables.

This data book is a valuable addition to the rather small number of good reference books available to the advanced amateur, semi-professional, and professional film maker.—M. A. M.

MY LITTLE BROTHER GETS AWAY WITH MURDER, by Alan and Harry Pesin. 56 pages, a picture or more per page. Perspective Publications, Inc., \$2.50

Several of the pictures in this book are interesting candid shots of two small boys at play. They have been mixed in with many other photos chosen on the assumption that a child's repetitive misdeeds are hilariously funny. Since the captions are in big type, the book is probably intended for children. But even children prefer humor to facetiousness.—W.H.J.

*These and other books are available through AMPHOTO; see page 127.



Skill is built into your KODAK SIGNET CAMERA

Kodak Signet 80 Camera—does everything so easily. Correct exposures come easy, because your meter's built in. You get sharp pictures, because you have a coupled rangefinder, a fine 50mm f/2.8 Kodak Ektanar Lens, and shutter speeds to 1/250. You have room to grow, to do new things, because the normal 50mm lens interchanges with a 35mm wide-angle or 90mm telephoto, and you have an array of precision photo aids to choose from.

Plus: fast drop-in film loading, automatic leader wind-off. With f/2.8 lens, \$129.50.

Kodak Signet 50 Camera—precision at a budget price. Holds your investment to a minimum, yet fully equips you for 35mm photography. You get a fast 44mm f/2.8 Kodak Ektanar Lens and new 8-speed Kodak Synchro 250 Shutter. You focus quickly and easily by zones. View through brilliant finder with luminous projected frame. Enjoy such precision features as drop-in loading, automatic leader wind-off. Comes complete with Kodalite Super-M4 Flashholder with interchangeable 4-inch and 3-inch reflectors. All for just \$87.50.

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Kodak
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automatically...

take pictures like these
with your very first roll!



Controlled automation makes it easy!

FUJICA

with automatic exposure setting electronic light meter for all shutter speeds up to 1/500 sec.

Fast Action! Portrait Close-ups! News Shots! Candid! Available Light!...in brilliant color or black and white...there is no picture beyond your scope with a FUJICA because the FUJICA gives you a choice!

You simply center the light meter needle and shoot...or...for unusual light or action situations select any one of a complete range of correct shutter speed-aperture combinations pre-set for you automatically by the meter. Either way you get a perfect exposure. **No more under or over-exposures.** This is true photographic flexibility...this is automation you control.

No more fuzzy focus, blank or blurred shots. FUJICA's exclusive eye-level rear focusing is the most convenient ever designed...and the preview picture window, automatic rangefinder shows you the sharply focused sparkle of your finished print. Parallax is corrected automatically. Super fast FUJINON f/1.9 or f/2.8 lens catches the shot even in dim light. Shutter speeds up to 1/500 sec. stop fast action!

A FUJICA with built-in automatic exposure-setting light meter costs only **\$99⁹⁵**. Other fine FUJICA's from **\$69⁹⁵**.

See the fabulous FUJICA 5-minute demonstration at your camera store.

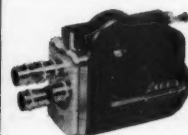


FREE: "35mm... Photography Unlimited." 20-page fact-filled buying guide... free at your camera store or write for your copy today.

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In Canada: Precision Cameras of Canada, Ltd., 5385 Paree Street, Montreal 9, Quebec

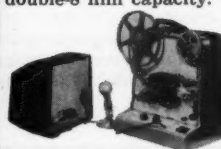
NEW products

Fairchild 8mm Sound System



The Fairchild Cinephonic Eight makes it possible to record and shoot sound films on 8mm film. Complete with built-in transistorized amplifier and its own

microphone, the camera has a 50-ft. capacity of 8mm magnetically striped film. The striping is 25 mils wide. Power for the amplifier and the electric motor drive is supplied by a rechargeable nickel-cadmium battery. Sound may be modulated before and during shooting with headphones and gain control on the camera. The camera alone weighs 4½ lbs. and operates at 24 fps only. Other features include three-lens turret, etched field viewfinder, and 50-ft. double-8 film capacity.



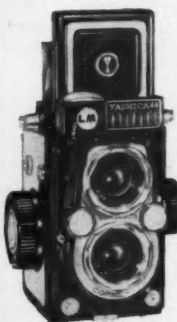
Companion to the camera is the Fairchild Cinephonic Eight sound movie projector with a vacuum tube amplifier for

showing magnetically striped film. The projector weighs 24 lbs., has a 6-in. independent speaker, 400-ft. reel capacity, 150-watt Tru-Flector lamp, and three-position switch for recording, playback, and sound mixing. It may be operated at either 16 or 24 fps.

Price of the camera with microphone, 15-ft. cable, and Elgeet 13mm f/1.8 lens, is \$239.50. Price of the projector with fixed-focus lens and microphone, \$249.50. Price per 50-ft. roll of Fairchild color film (100 ft. when processed) is \$7.50. Write:

FAIRCHILD CAMERA AND INSTRUMENT CORP.
580 MIDLAND AVE., YONKERS, N. Y.

Light Meter Added to Yashica 44



The new model 44-size (using 127 film) Yashica twin-lens reflex camera, known as the Yashica 44LM, has a small uncoupled exposure meter built-in above the lens mount. The camera features Yashinon 60mm f/3.5 taking and viewing lenses and a manual cocking Copal SV shutter with speeds from 1 to 1/500 sec., B, self

timer, and MX sync. In operation, you set film speed, from E. 1.6 to 400, on a dial located in the semi-automatic film advance knob. Then set the meter reading on a scale on the outer rim of the knob and read the correct lens aperture-shutter-speed combinations from the corresponding scales in the knob. Additional features are: a Fresnel focusing (Continued on page 20)

MODERN PHOTOGRAPHY

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Individual Focus

8 x 30	13.49
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Takes perfect pictures automatically
Features: Electric eye exposuremeter coupled to lens and shutter • sharp f1.8 lens • automatic parallel correction • MXV shutter, speeds to 1/500 • flash strobe synchronizer • coupled rangefinder • luminous viewfinder • automatic exposure counter • PLUS many deluxe features.

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500 Watt-inc. 7 trays—list 154.95

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BRAND NEW Weston III or G.E. Golden Crown EXPOSURE METER



Reg. 32.50
SPECIAL 2250

• Imported Alpac photo electric exposure meter... with case and chain
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Special! SLIDE TRAYS AND CASE 12 UNIVERSAL TRAYS



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Carrying Case with 12 Mag. 19.95

Beauty Super 'L'

Built-in Exposure Meter with fastest plug-in Amplifier. Fast f1.8/50mm coated lens. • Cross-coupled LV. speeds to 1/500th • Full MX flash sync. • Coupled Range/Viewfinder w/parallel correction • S/Cocking Shutter exp. count

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• With Splicer & Rewinds • Portable Carrying Case Available in 16mm (Same Price)

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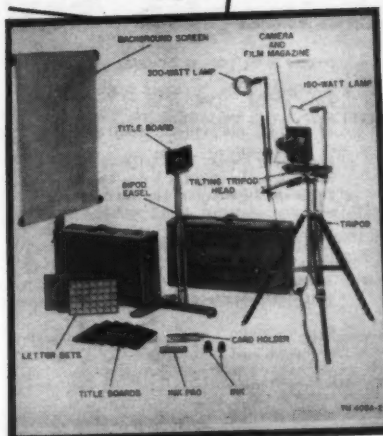
- Consists of:
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for EASY
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PETRI CAMERA CO. INC.
889 Broadway, New York.

Manuf. by: KURIDAYASHI Camera Ind. Inc., Tokyo,

NEW PRODUCTS

(Continued from page 18)

cusing screen with a clear spot in the center, built-in magnifier for critical focusing, sportsfinder, film speed reminder dial, depth-of-field scale, and exposure counter window. The Yashica 44LM sells for \$59.95. Leather case is \$10 extra. Write:
YASHICA CAMERA CO.
234 FIFTH AVE., NEW YORK 1, N. Y.

Auto Diaphragm on Dekon S.R.



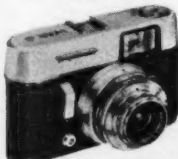
A low-priced 35mm single-lens reflex camera, the Dekon S.R., is equipped with an automatic diaphragm and a similar 50mm f/2.8 lens. The range of speeds on the Seikosha shutter is from 1 to 1/500 sec. plus B. It has MX sync and a self timer with 10-sec. delay. Two levers, one on each side of the lens mount, provide double finger-tip focusing from 2 ft. to infinity. Additional features are single-stroke film advance lever and depth-of-field indicator. Auxiliary wide-angle (37mm f/4) and telephoto (85mm f/4) lens converters are available. The Dekon S.R. is priced at \$89.50; carrying case, \$12.50; wide-angle auxiliary lens, \$39.50; telephoto auxiliary lens, \$49.50. Write:
DEJUR AMSCO CORP.
45-01 NORTHERN BLVD., LONG ISLAND CITY 1, NEW YORK

Dacoromatic Is Auto 35mm Camera



The 35mm Dacoromatic camera, with a zone-focusing Dignar 45mm f/2.8 lens, has semi-automatic electric eye operation provided by an exposure meter coupled to the Prontormat shutter. After setting the film speed, from E.I. 10 to 3200, the photographer lines up a pointer with the meter needle, both visible at either the top of the camera or at the rear of the viewfinder. This sets the lens at the proper opening, from f/2.8 to f/16, and the shutter at the correct speed between 1/30 and 1/300 sec. The Prontormat shutter also has a B setting and sync for flashbulbs and electronic flash at 1/30 sec. Other features of the camera are an optical frameline finder and a single-stroke film advance lever. The Dacoromatic is priced at \$59.95. The Dacora RF and Super RF, both rangefinder models with f/2.8 lenses, but without the meter and automatic shutter, cost \$39.95 and \$49.95, respectively. The case is \$9.95 extra. Write:
VOSS PHOTO CORP.
28 SCHOOL ST., YONKERS, N. Y.

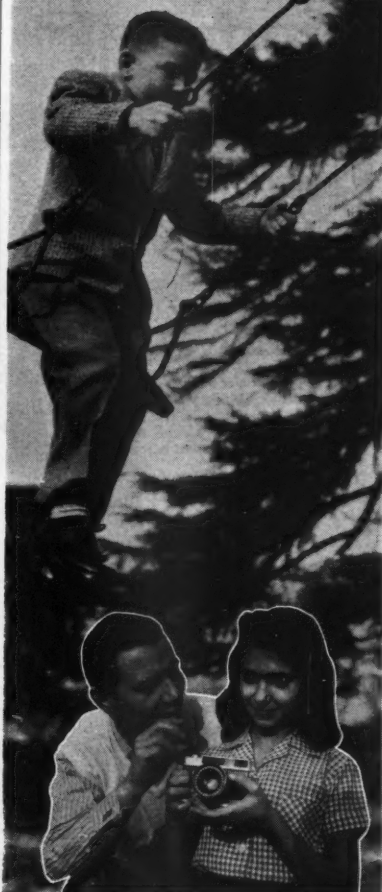
Vito C 35mm Camera



The Voigtlander Vito C 35mm rangefinder camera is equipped with a Lanthar 50mm f/2.8 lens and a helical focusing scale in addition to zone-focusing settings for portrait, group, or landscape pictures. The Gauthier Pronto shutter has speeds from 1/30 to 1/250 sec., B, self timer, and X sync. Also featured: single-stroke film advance, 1:1 viewfinder with frameline and parallax correction marks, cable release socket, film (Continued on page 22)

EXPOSURE!

No Figuring with Seikosha Shutter



Seikosha · SLV

equipped in the following CAMERAS:

RICOHATIC 225. RICOH 519M
KONICA III-M, OLYMPUS AUTO, OLYMPUS
SII, AIRES VISCONT, AIRES III-S
KALLO 140, AIRES III-SA, LORD MARTIAN

Here is the revolutionary Seikosha shutter! Has light value system in which shutter and diaphragm are interlocked for exposure range accuracy; internal synchronization with shutter delay time exclusively centered to flashbulb peaks; built-in self-timer; plus many other exclusive Seikosha features. SEIKOSHA SHUTTERS, the world's finest, are consistently featured on top-rated cameras.



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Manufactured by: Seikosha Works of K. Matori & Co., Ltd. Tokyo, Japan

Revere introduces new automatic electric-eye 8mm cameras with sensational *zoom* action!

Just touch the button for telephoto closeups, for normal and wide angle views.

POWER-ZOOM



WIDE ANGLE **NORMAL** **TELEPHOTO** **TELEPHOTO**
ZOOM lens glides smoothly back and forth, creating the lens effects heretofore reserved for television and motion picture cameramen. Extra-large coupled viewfinder zooms automatically with lens showing what is being taken.



REVERE POWER-ZOOM ELECTRIC EYE-MATIC

Here is the camera that gives your home movies the professional touch! World's first fully automatic camera that zooms under its own power! Now at the mere touch of a button, the superfast Wollensak f/1.8 Raptor Zoom lens glides smoothly back and forth—providing normal, wide angle and telephoto movies with continuous sharpness throughout the entire zooming range. If desired, you have option of zooming manually.

Automatic electric-eye exposure. ASA speeds of 10, 16, 20, 25, 32 and 40—for present as well as future films. "Optic-Scale" with insufficient light signal. Manual exposure control knob for special effects. Back-light exposure compensation. Easy drop-in spool or magazine load. Mechanical "heart-beat" in magazine model. Self-setting footage indicator, self-locking door, continuous run and single frame exposure.

MODEL CA-118—Spool load with Manual Exposure Control...\$179.50
MODEL CA-119—Magazine load with Manual Exp. Control...\$199.50
MODEL CA-116—Spool load without Manual Exp. Control...\$169.50
MODEL CA-117—Magazine, without Manual Exp. Control...\$189.50

ALL PRICES INCLUDE FEDERAL EXCISE TAX

REVERE CINE-ZOOM ELECTRIC EYE-MATIC

Zoom in normal, wide angle and telephoto scenes by manually sliding the Wollensak f/1.8 Raptor Zoom lens back and forth. Exposure is, of course, automatically set by the electric-eye. You merely zoom in the scene you wish to take... and it's yours, without figuring or guessing.

MODEL CA-114—Spool load, F.E.T. inc...\$139.50
MODEL CA-115—Magazine load, F.E.T. inc...\$159.50

See these amazing cameras now being demonstrated at your authorized Revere dealer.

REVERE CAMERA COMPANY, CHICAGO 16 • LOS ANGELES 7



Just slide the lens for telephoto closeups, for normal and wide angle views.

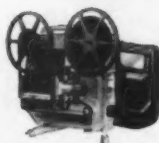


CINE-ZOOM



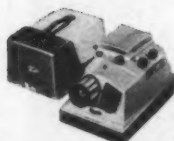
AZ-777 AUTOMATIC 8MM PROJECTOR

Automatically feeds film, right on to the take-up reel, and starts your movies by itself, no threading! Forward and reverse; Wollensak F/1.5 Zoom lens enlarges the scene; 400 ft. reel. \$147.50



718-8MM PROJECTOR

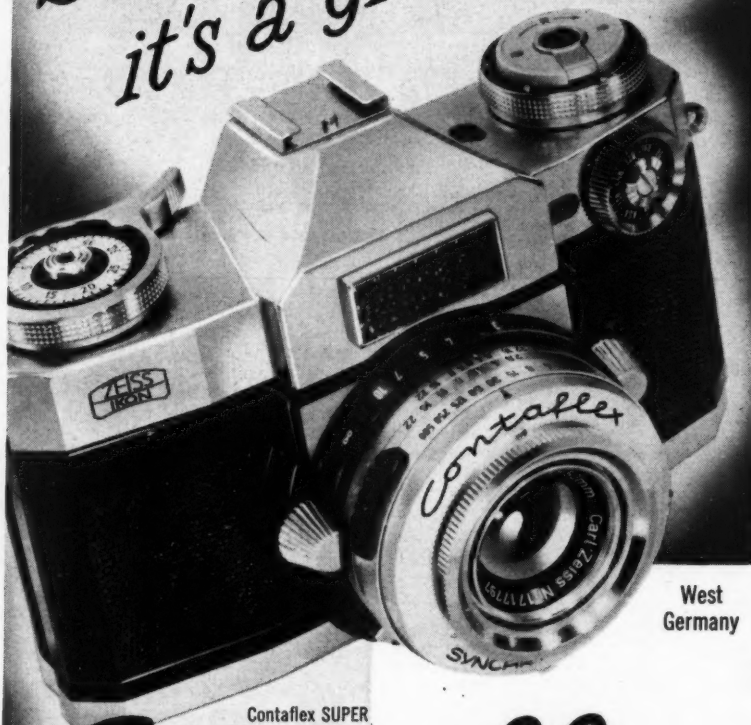
Compact, modern-styled. Forward and reverse; 3/4" F/1.6 lens; New DCA reflector type lamp; 400 ft. reel; case. \$99.50
Z-718—8mm Projector—Same with 15-25mm F/1.5 Zoom lens. \$114.50



808 AUTOMATIC SLIDE PROJECTOR

2 x 2 true automatic. Shows 36 slides (35mm, bantam or 1 1/4 x 1 1/4 super-slides) automatically. 500 watts; 8" F/3.5 Wollensak lens. Case and 7 Revere trays. \$154.50

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35mm single-lens reflex

Camera fans know a real value when they see it. And throughout the world they're buying the Contaflex at a phenomenal rate... It's unique features will lead you to broader horizons, finer results in photography... Superb precision craftsmanship insures dependable performance year after year. A camera you'll carry with pride!

See Contaflex and you'll be convinced. Four models. At Zeiss Ikon dealers.

Literature on request

CARL ZEISS, INC., 485 Fifth Avenue, New York 17



Symbol of Excellence

NEW PRODUCTS

(Continued from page 20)

type reminder dial, accessory shoe, and subtractive exposure counter. The Voigtlander Vito C sells for \$39.50. Write:

H. A. BOHM & CO.
4671 W. TOLUEN AVE., CHICAGO 46, ILL.

8mm Electric Eye Zoom Cameras



Wollensak's 8mm Electric Eye-Matic Power-Zoom Movie Cameras feature two buttons, marked wide-angle and telephoto, which zoom the Raptar Power-Zoom f/1.8 lens from 9 to 30mm. The viewfinder is coupled to the lens and zooms automatically with the lens. Other features include: film-speed settings from E.I. 10 to 40, low-light warning signal, drop-in spool or magazine loading, backlight exposure compensation, self-setting footage indicator, spring motor, audible film advance signal on magazine models, continuous run and single-frame exposure. The four new Wollensak 8mm Electric Eye-Matic Power-Zoom Cameras and their prices are: Model C-74, spool load with manual exposure control knob, \$189.50; Model C-75, magazine load with manual exposure control knob, \$209.50; Model C-56, spool load, \$179.50; Model C-57, magazine load, \$199.50. Write: WOLLENSAK OPTICAL CO. 320 E. 21 ST., CHICAGO 16, ILL.

IN NEXT MONTH'S MODERN

Still more red-hot questions
are hammered out in Too Hot
to Handle.

Slide Projector with Zoom Lens



Argus has introduced the automatic Multiscope President slide projector featuring a zoom lens. The 36-slide capacity trays hold either 35mm, 828, or 127 slides. An adapter for single slides is also available. The width of the picture on a screen, placed 12 ft. from the projector, can be varied by zooming the lens, from 31 to 41 in., without refocusing or moving the projector. Other features of the Multiscope President are: on-off switch which allows the blower cooler to operate when the lamp is off; automatic timer that varies the interval between slide changes from 5 to 60 sec.; remote control system for manual operation at a distance of up to 15 ft.; push-button manual cycle; forward or reverse tray direction control; electrical projection elevation control; leveling control; and 500-watt lamp. The Argus Multiscope President slide projector sells for \$169.95. Write: ARGUS CAMERAS 405 FOURTH ST., ANN ARBOR, MICH.

B & H Automatic Slide Projectors



Bell & Howell introduces two Explorer 500-watt automatic slide projectors which operate with trays that hold 40 35mm, 2 x 2 Bantam or super slides. Model 753Y Explorer has a Filmovara 3 1/2- to 4 1/2-in. f/3.5 zoom (Continued on page 24)

MODERN PHOTOGRAPHY

OLDEN DIRECTORY



ZEISS
PRO-TESSAR LENSES
for Contaflex III and
IV, 35mm Wide angle,
85mm Telephoto.

W.A. \$8900
MFR'S LIST PRICE \$9900



BRONICA
2 1/4 x 2 1/4 SL Reflex,
f2.8 autom. diaphragm
interch. magazines.

MFR'S LIST PRICE \$48950



BUSHNELL
SPACEMASTER
750-3000mm Telescope
for all 35mm SL Refl.
Use also as telescope.

MFR'S LIST PRICE \$9500

TRADE! OLDEN WILL SAVE YOU MONEY! WRITE TODAY!



SUPER IKONTA IV
Zeiss Tessar F:3.5, MXV
synch., built-in Meter,
autom. film transport.

MFR'S LIST PRICE \$7900



NIKON S3
With tri-focal finder and
Rangefinder, MX synch.
Nikkor F:2 lens.

MFR'S LIST PRICE \$26950



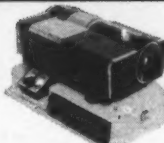
ARGUS AUTRONIC 35
Completely autom., full
range electric eye shut-
ter. Just aim & shoot.

MFR'S LIST PRICE \$7950



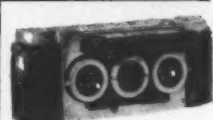
DURST 608
8mm to 2 1/4 x 2 1/4 en-
larger, friction drive,
distortion corr., heli-
cal lens mount, dou-
ble condenser.

MFR'S LIST PRICE \$9950



REALIST 990
Autom. slide projector,
built-in Timer, 500W,
blower, remote control.

MFR'S LIST PRICE \$21500



REALIST CUSTOM
Stereo camera, matched
F:2.8 lenses (rare earth).
Rfdr. synch.

MFR'S LIST PRICE \$9450



BESELER
DREAM
DARKROOM
Beseler 23C enlarger,
easel, variam filter,
3-trays, dev. tank,
timer, thermom, devel-
oper, fixer, safelite,
etc.

MFR'S LIST PRICE \$19500



AUTO ROLLEIFLEX T
Latest, improved Tes-
sar F:3.5, single lever
control, detach. hood.

MFR'S LIST PRICE \$16900



ROLLEIFLEX 3.5 E2
Latest, new brilliant
screen, MXV synch.,
interch. lenshood.

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MADE YOUR CASE
**LET'S TALK
PRICE
WRITE TO
OLDEN**



MAMIYAFLEX "C"
Only Twin-Lens Reflex
with interchangeable
lenses, focus to 7"
F:2.8 lens.

MFR'S LIST PRICE \$16950



MINOLTA AUTOCORD
4-element F:3.5 MX
synch. autom. shutter
cocking.

MFR'S LIST PRICE \$9950



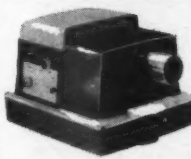
YASHICA 44 LM
Built-in exp. meter,
semi-auto film transp.,
MX synch., foc. screen.

MFR'S LIST PRICE \$5995



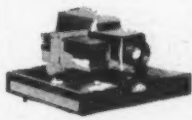
SUPER LINHOF IV
150mm. Symmar F:5.6
lens, multifocus prism
rangefinder, Ekaltite
field lens, triple exten-
sion, Anatomical Grip.

MFR'S LIST PRICE \$62900



B & L BALOMATIC 305
Slide projector, 500
W. lamp, high pic-
ture fidelity, autom.
finger-tip or remote
control.

MFR'S LIST PRICE \$9950



B & H HEADLINER
Project-or-View, 500W,
blower, semi-matic
changer with cass.

MFR'S LIST PRICE \$6995



IKONTA IV
D.C. flash unit, fits any
camera, all type flash
bulbs, guide calculator,
small, compact.

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SEKONIC
ELMATIC 8
3 lens turret, electric
eye f1.9 lenses w/
match. finders, built-in
filters.

MFR'S LIST PRICE \$8950



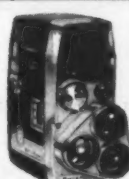
B & H 414 Z
8mm Zoom camera, full-
time electric eye, zoom-
atic viewfinder.

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MINOX B
Coupled Exp. meter,
focus to 8", parallax
corr, case and chain.

MFR'S LIST PRICE \$16950



B & H 410 TE
Electric eye, 3 lenses
f1.8, built-in filter, slow
motion ASA 10-40.

MFR'S LIST PRICE \$19995



CANON REFLEX
ZOOM 8
f1.4 hi-speed, 10-40mm
zoom, built-in exp.
meter, reflex focusing.

MFR'S LIST PRICE \$23950



B & H SUPER
AUTO-LOAD
8mm projector, autom.
threading, 3-way con-
trol, 400 cap. variable
speed.

MFR'S LIST PRICE \$13995



CONTAFLIX SUPER
Built-in Photo-Eye, Rapid-
wind lever, MXV shutter,
Tess. 2.8, self-timer.

MFR'S LIST PRICE \$19900



DEJUR DEKON-SR
Small, lightweight, f2.8
autom., MXV synch.,
lever wind.

MFR'S LIST PRICE \$8950



NIKON F
Automatic Reflex, Nikkor
F:2, instant mirror re-
turn, Depth-of-field pre-
viewer, single stroke
film advance.

MFR'S LIST PRICE \$32950



BESELER TOPCON
6-element F:1.8 fully
autom. diaphragm, single
stroke advance, instant
mirror return.

MFR'S LIST PRICE \$29500



CANONFLEX
Fully automatic, instant
mirror return, F:1.8
lens, coupled exposure
meter.

MFR'S LIST PRICE \$29995



MINOLTA SR-2
Autom. diaphragm, bay-
onet mount F:1.8 lens,
selftimer, instant mirror
return, MX synch.

MFR'S LIST PRICE \$24950

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World leaders in precision manufacture,
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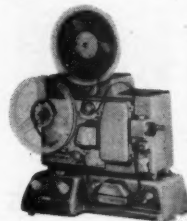
ALFRED GAUTHIER, GMBH
CALMBACH / ENZ, GERMANY

NEW PRODUCTS

(Continued from page 22)

lens, a blower-cooled DAK 500-watt lamp, and projects an image which will fill a 40-in. screen placed anywhere from 8½ to 11 ft. away. Model 753 has a 4-in. f/3.5 lens, a blower-cooled DAK 500-watt lamp, and will fill a 40-in. screen at a 10-ft. projection distance. Both models have forward-reverse operation, illuminated dial controls, counter window showing the number of projected slides, 7-ft. cord, and operate on 105-120 volts AC. The 753Y Explorer is priced at \$129.95; the 753, \$99.95. Write: BELL & HOWELL
7100 MCCORMICK RD., CHICAGO 45, ILL.

Agfa 8mm Sound Projector



The Agfa Sonector-8 projector for 8mm movies offers two sound systems—either magnetic striping on film or tape recorder and projector synchronization. The two systems are independent. The Sonector operates at 18 fps, rather than 16, for better

sound reproduction. Sound is dubbed, either on magnetic striping or independent tape, after the film is shot and processed.

If used for magnetic striping on film, the Sonector is equipped with the Sonector-Phon sound unit. The projector sits on top of the sound unit and an additional film loop is passed through its magnetic pick-up head. Voice, record player, radio or tape recorder sound may be fed into the Sonector-Phon. Sounds may be mixed during recording and modulated by means of a signal light. It also has outputs for speaker and earphones. The Synchronovox sound coupler is attached to the projector when tape recorder synchronization is desired. The unit syncs tape and projector speed, and also automatically stops both machines when the film is over. Price of the Sonector-8 with Sonector-Phon attachment for sound on film is \$299. The Synchronovox attachment is \$58. Write: AGFA INC.
516 W. 34 ST., NEW YORK 1, N. Y.

Edimat 8mm Action Editor



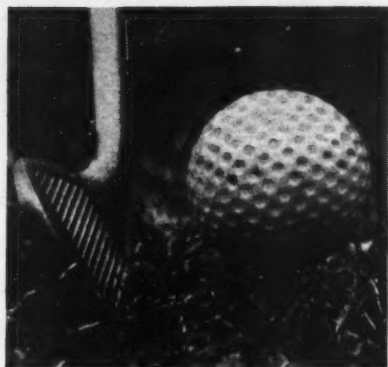
The self-contained all-metal Walz Edimat 8mm action editor is equipped with a motorized rewind, a viewing screen of 14X magnification, and accommodates reels of up to 400-ft. capacity. It measures about 8½ x 6½ in. The Edimat also features a built-in individual frame marker, hand frame, and focusing wheel. The Quik Splice splicer, with 18 Mylar tapes for dry butt splicing, is included with the Edimat. The Walz Edimat, with splicer and tapes, is priced at \$49.95. Write: U.S. PHOTO SUPPLY CO.
6478 SLIGO MILL RD., WASHINGTON 12, D. C.

Thin Emulsion Developer

Ethol T.E.C. Thin Emulsion Compensating Film Developer shortens developing times as much as 15 minutes. As an example, the company claims Kodak Panatomic-X can be developed for 7 minutes at 75 degrees. The compensating action of T.E.C. is said to minimize the density difference between highlight and shadow areas, thus reducing the contrast often found in thin emulsion films. T.E.C. is panthermic, which means that developing tem-

(Continued on page 28)

FROM HERE (4") TO INFINITY



CLOSE-UP AT 4 INCHES



INTERMEDIATE



WIDE ANGLE

Exakta announces continuous focusing with Exakta and the New, remarkable Steinheil Auto-Quinaron Lens

Just imagine...with only one lens...you take pictures at infinity...and close-ups of the same subject in life size or magnified...by simply moving in closer and closer to the subject while turning the lens!

Terrific isn't it, not to depend on extension tubes or bellows extensions! Virtually no exposure increase and no computations when time is a factor and the work is important.

You'll get the complete subject to fill the entire film frame especially with such small subjects as flowers, insects, coins, stamps, etc. You can even fill the film frame with only part of your subject as the petal of a flower, the head on a coin, etc.

What's more, the Steinheil Auto-Quinaron for Exakta is a 2-in-1 lens because it is both a GENUINE 7-element WIDE ANGLE lens and a CLOSE-UP lens too! It has a fast F2.8 speed and a focal length of 35-mm (62° angle of view). It is ideal for both color and black and white.

Not only does the Auto-Quinaron combine the latest advancements in optical design, but its fully automatic diaphragm mechanism is the most dependable ever designed!

Be sure to see the Steinheil Auto-Quinaron lens for Exakta, today, at your dealer. Price \$149.50, list.



NEW, STEINHEIL F1.9 AUTO-FLASH QUINON 55-MM LENS WITH FLASH CALCULATOR—A NEW AND INVALUABLE FEATURE FOR EXAKTA

The new F1.9 Steinheil Auto-Flash Quinon 55-mm lens with automatic diaphragm is tops of the latest optical creations in the Exakta system of photography.

This newest automatic lens for Exakta features a smart new calculating device which accurately computes and indicates diaphragm stops and distance settings for flash pictures! Its excellent correction renders maximum definition and fine contrast. This and its high speed rates the Auto-Flash Quinon outstanding for color and black and white photography.

Exakta Light-Meter Ila Camera with Built-in Electric Exposure Meter & Penta Prism eye-level viewfinder and automatic Split-Image Rangefinder and Direct Optical viewfinder with F1.9 Steinheil Auto-Quinon lens with flash calculator and fully automatic diaphragm.....\$429.50, list
F1.9 Steinheil Auto-Quinon lens only, without camera.....\$169.50, list



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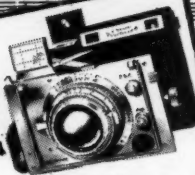
YOU

YOU MUST BE

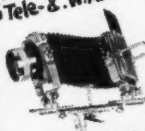
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World's smallest Press Camera
Takes 2 1/4 x 3 1/4 cut film
Film pack & roll film
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REG. \$ 393.00
BRAND NEW \$196.00



4x5 PLAUBEL Professional Universal View Camera

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- Quick release back
- Lightweight metal

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PLAUBEL Jr. 2 1/4 x 3 1/4 View Camera
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4X5 PACEMAKER CROWN GRAPHIC

- 135mm XENAR f4.7 lens
- Syncho Compur MX shutter
- Kalart coupled R.F.
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- Governor controlled

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ZEISS TESSAR f2.8



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- MX synch.
- Coupled Rangefinder

List \$99.50 **BRAND \$34.50**
CASE \$3.95 **NEW**

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35mm Rangefinder Camera
ZEISS TESSAR f2.8 lens **BRAND \$27.50**
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GOLDEN RICOH 16

SUBMINIATURE

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Reg. \$39.50 **BRAND NEW \$14.50**

Telephoto lens
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RICOH 16 compl. Kit: CAMERA, CASE
Flashgun, VIEWER
color film, IN FITTED CASE
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35mm SINGLE LENS REFLEX

- ZEISS Eyelevel Prism Finder
- Autom. diaphragm
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- Full flash MX synch.
- Speeds 1-1/1000

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35mm Steinheil W.A. **\$24.50**
reg. \$34.50

200mm Tele-Quinor f4.5 **\$49.50**
reg. \$119.50

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SAV

16mm MOVIE

B&H 70DE, Turret, F1.9, 100',	reg. 348.00	NEW	139.00
B&H Mag. 16, F1.9, loc. mount,	reg. 199.50	NEW	28.00
B&H 70DE, Turret, F1.9, 100',	reg. 348.00	NEW	139.00
B&H 70DE, F1.9, Electric Eye Mag.	reg. 199.50	NEW	114.00
B&H Special 1, F1.9, 100' Mag.	reg. 337.00	NEW	168.00
B&H 70DE, Turret, F1.9, 100',	reg. 348.00	NEW	139.00
Kodak Royal Mag. 16, F1.9,	reg. 198.00	NEW	58.00
Kodak Royal Mag. 16, F1.9,	reg. 198.00	NEW	58.00
Pathe 16, Turret, F1.9, 100',	reg. 458.00	NEW	168.00
Beyer 20, Rapitar 1.8, F1.9,	reg. 224.00	NEW	84.00
Zeiss Ikon, Rapitar 1.8, F1.9,	reg. 224.00	NEW	84.00
Zeiss Moxikon 16, F1.4, Rtd,	reg. 398.00	NEW	149.00
Folienak 63, Mag. 3, Jensen,	reg. 287.00	NEW	148.00
Folienak 63, Mag. 3, Jensen,	reg. 287.00	NEW	148.00
Keystone K160, 750W proj,	reg. 179.95	NEW	69.95
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B&H Utility, sound proj, 12" speaker,	reg. 199.00	NEW	119.00
B&H 202, sound, 12" speaker,	reg. 199.00	NEW	119.00
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Victor 40, sound, 12" speaker,	reg. 225.00	NEW	88.00

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 For Angenieux, Bolex, M.A., and 35mm. and

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4" B&H Telate F:4.5, telephoto, reg. 89.50.....	used	49.50
4" Kodak F:2.7 telephoto, reg. 98.50.....	used	38.50

App. MOVIE

B&H 220, Wilshire, F2.5, ref. 39.50,	used	14.50
B&H Sportster, 134V, F2.5, ref. 89.50	used	19.50
B&H 172M, Mag. 8, F1.9	used	29.50
B&H 1000, Electric Eye, F1.6, ref. 99.50,	used	39.50
B&H 1000, Electric Eye, Zoom, ref. 159.50	NEW	79.50
Bolex CS, Rapid 8, F1.6	NEW	37.50
Bolex 8, 100, 190.50	NEW	109.50
DeJor Embassy, Mag. F1.5, ref. 109.50,	used	18.50
DeJor Electric, 14mm, 5 lenses	used	19.50
DeJor 1000, 110.50	used	19.50
Kodak Brownie, F2.3, ref. 29.95	used	9.50
Kodak 8, 100, 110.50	used	9.50
Kodak Mag. 8, F1.9, for. mount, ref. 149.50	used	18.00
Revere 80, F2.5, ref. 99.50	used	45.00
Revere 80, F2.5, ref. 99.50	used	45.00
Revere CA-1, Electric Eye, F1.8, ref. 139.50	NEW	82.50
Revere CA-1, Electric Eye, Zoom, ref. 179.50	NEW	92.50
Revere 40, F7, Electric, Eye, Zoom, ref. 179.50	NEW	92.50
Revere 40, F7, Electric, Eye, Zoom, ref. 179.50	NEW	92.50
Wittnauer Cine, 16mm, camera & proj.	used	79.50
Wollensak 53, 3 lenses, ref. 169.50	NEW	49.50
Yashica 100, 110, 110.50	NEW	49.50
Argus M500, 500W projector, case	used	44.00
Argus M500, 500W projector, case	used	44.00
Revere 85D, 550V, speed, ref. 127.50	used	44.00

LENSES FOR SINGLE-LENS REFLECT

28mm	Angenieux F.3.5 W.A., pre.	120.00	used	87.00
34mm	Auto-Angenieux F.4 W.A., pre.	109.50	NEW	52.00
35mm	Angenieux F.3.5 W.A., pre.	99.50	used	39.00
35mm	Steinheil Culminar W.A., pre.	54.50	NEW	24.00
35mm	Auto-Angenieux F.3.5 W.A., pre.	99.50	used	39.00
35mm	Auto Flectagon F.2.8 W.A., pre.		NEW	62.50
40mm	Schneider F.4.5 W.A. King		used	22.00
40mm	Zeiss Jena Biotar F.2.8		used	22.50
50mm	Auto-Westalcor F.1.9, pre.	120.50	NEW	64.50
50mm	Auto-Angenieux F.3.5 W.A., pre.	99.50	used	39.00
50mm	Auto-Quinar F.1.9, pre.	169.50	NEW	72.50
50mm	Biotar F.2, pre-net.	pre.	used	58.00
50mm	Zeiss Jena Biotar F.2.8		used	58.00
50mm	Biotar F.1.5, pre.	210.50	used	78.50
50mm	Komura F.2.8, pre.	210.50	used	78.50
50mm	Zeiss Jena Biotar F.2.8		NEW	28.00
50mm	Tele-Quinar F.2.8, pre.	149.50	NEW	54.50
50mm	Auto-Angenieux F.3.5 W.A., pre.	99.50	used	39.00
50mm	Tele-Xenar F.3.5 auto, pre.	189.50	used	64.50
50mm	Kliffit F.3.5, pre.	147.50	used	74.50
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50mm	Sonnar F.2.8 Olympic, pre-net.		NEW	185.00
50mm	Tele-Quinar F.4.5, pre.	119.50	NEW	49.50
50mm	Zeiss Jena Biotar F.2.8		used	49.50
50mm	Zeiss Sonnar, Olympic, pre.	495.00	NEW	238.00
50mm	Zeiss Jena Biotar F.2.8		used	49.50
50mm	Vogtlander Zoom lens F.2.8, pre.	318.50	used	184.00

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Argus 300, blower, 300W, P:3:3, reg. 39.50, used	19.50
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B&H Explorer, 300W, remote, reg. 99.50	used 48.00
Keystone 511, autom. 500W	used 62.00
Quick-net 303, autom. 300W, reg. 49.50	NEW 34.50
Revere 888, 500W, autom. Timer, reg. 149.50	NEW 79.50

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LENSES FOR NIKON CONTAX		
1mm Bioron		\$107.50
25mm Nikkor F4.5 W.A. reg.	49.50	used 87.50
35mm Konura F2.8 W.A. reg.	70.50	NEW 39.50
35mm Nikkor F2.8 W.A. reg.	139.50	used 78.50
35mm Nikkor F1.8 Speed W.A. reg.	170.50	used 98.00
35mm Zeiss Bioron F2.8 W.A. reg.	139.50	used 78.50
35mm Zeiss Bioron F2.8 W.A. reg.		used 49.50
50mm Nikkor F1.1 high-speed, reg.	315.00	used 182.00
50mm Nikkor F1.1 high-speed, reg.	175.00	used 88.50
55mm Nikkor F2.5 telephoto, reg.	70.50	used 39.50
105mm Nikkor F2.5, for Contax		used 79.75
135mm Konura F2.5 telephoto, reg.	70.50	NEW 39.50
135mm Nikkor F2.5 telephoto, Contax		used 79.50
135mm Zeiss Bioron F4.5, tele. reg.	148.00	used 74.00
135mm Zeiss Bioron F4.5, tele. reg.		used 74.00
Universal Optical Viewfinder	reg. 34.50	NEW 16.50

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Ultrablitz Comet, permanent battery	used	19.50
Ultrablitz Monojet, latest, reg. 89.50	NEW	49.50
Ultrablitz Meteor II, Transistor, reg. 99.50	NEW	89.00

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34434 Linhof Super, 3 lenses, Rdr.	used	288.00
34434a Linhof Press, F4.5, reg. 119.50	used	23.00
34434b Linhof Super, F4.5, reg. 4.5	used	23.00
34444a Bunch Graphic Tess. 4.5	used	29.50
34444b Pnemaker Speed F4.7, Rdr.	used	118.00
34444c Graflex 11, 11.5, 11.5, 11.5, 11.5	used	48.50
34445 Graphic View 11 reg. 199.50	used	109.00
34446 Graflex 11, 11.5, 11.5, 11.5, 11.5	used	93.50
34447 C. Tess. 2.8, MX, Rdr.	used	22.50
34448 Makina II, Auto-Corner F3.9, Rdr.	used	38.50
34449 Kodak Super 8, 11.5, 11.5, 11.5, 11.5	used	26.50
34450 Mamiya G, F3.5, Rdr. synch. reg. 79.50	used	22.50
34451 Super Ikonta C. Tess. 3.5, Rdr.	used	49.50
34452 Super Ikonta C. Tess. 3.5, Rdr.	used	49.50
34453 Super Ikonta B. Tess. 2.8, Rdr.	used	45.00
34454 Super Ikonta BX, Tess. 2.8, Rdr. Exp. Meter	used	69.50

ket-size, rev. 39.5

Agfa Photo Rdr. Camera	used	\$98.00		
Good Super Director Exp. meter,				
Ref. # 13595	NEW	11.95		
Leitz Focaltine copying attachm.,	ref. 39.50	used	19.95	
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Extension bellows for S.L. Reflex		used	12.98	
Graphic camera		used	13.95	
Kodak Stereo, F3.5, synch.		used	20.00	
Norwest Stereo, F3.5, Rdr.		NEW	48.50	
Viewmaster Stereo projector, ref.	119.50	used	89.50	
Tollensack Stereo, F2.7, Rdr.		used	69.50	
Graphic camera		ref. 17.05	used	17.05
Case with B.C. flash for Prominent & Viteless		NEW	7.50	
Graphic grip handle		NEW	3.95	
Graphic handle		NEW	3.95	
Graphic handle		NEW	3.95	
Graphic cut-film holders, ref. 5.45		used	1.20	

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for 2 1/4 x 2 1/4



for 4 x 5



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CHICAGO—624 South Dearborn Street

LOS ANGELES—7310 Melrose Avenue

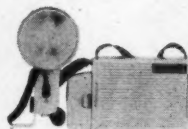
NEW PRODUCTS

(Continued from page 24)

peratures may range from 60 to 80 degrees. A 1-oz. bottle makes 16 oz. of working solution, enough to develop two 36-exposure rolls of 35mm film. Three 1-oz. bottles of T.E.C. cost \$1. Write:

PLYMOUTH PRODUCTS CO.
1770 W. BERTHAU, CHICAGO 13, ILL.

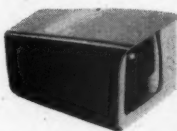
Meteor II Electronic Flash



A guide number of 56 for Kodachrome is recommended by the manufacturer for the Ultrablitz Meteor II electronic flash unit. A pocket-sized rechargeable Battery Booster is said to double the number of flashes on one charge. Additional features of the Meteor II are an automatic cut-off switch to prevent power drain, variable beam reflector (50° normal, 80° wide-angle), 1/1300 sec. speed at full power (1/2500 sec. at half power), rechargeable nickel-cadmium batteries, built-in charger for AC current, AC operation, and 9-sec. recycling time on battery. Price of the Ultrablitz Meteor II, \$99.50. Battery Booster costs \$34.95. Write:

ALLIED IMPEX CORP.
300 FOURTH AVE., NEW YORK 10, N. Y.

Argus Hand-Held Slide Viewer



The PreViewer III hand-held slide viewer, manufactured by Argus, is used for either 35mm or super slides. Illumination is provided by two penlight batteries. The viewer automatically lights when the slide is inserted, with no pressure on the slide itself required. It illuminates the full image in either horizontal or vertical position. The back of the PreViewer III can be removed for battery replacement or dusting. With the back off, the viewer may be used with available light. Made of high impact styrene, the viewer comes in turquoise, coral, or gray. Price of the Argus PreViewer III, \$2.95. Write:

ARGUS CAMERAS
405 FOURTH ST., ANN ARBOR, MICH.

Richard Plastic Clip

The Richard plastic clip for drying negatives may be threaded or hooked on a darkroom drying line. A plated metal spring supplies pressure for the clip to hold the film. Clips come in red, white, and blue. Price of the Richard clip, \$2 for 10, or 25 cents for one. Write:

RICHARD MFG. CO.
BOX 2041, VAN NUYS, CALIFORNIA

Leather Lens Pouches

A group of soft leather pouches has been made available for carrying lenses and other small photographic accessories. The pouches are fully lined and come in three sizes to accommodate either normal and wide-angle, 90mm to 105mm, or 135mm lenses. Each pouch contains an outside zipper pocket for adapter rings and filters. The pouches are large enough to hold such items as flashguns, bellows units, and extension tubes. Prices of the pouches range from \$1.85 to \$1.85. Write:

PHOTOGRAPHIC IMPORT. & DISTRIB. CO.
67 FOREST ROAD, VALLEY STREAM, N. Y.

Change of address: Flex Electric Products has moved from 145 Skillman St., Brooklyn 5, N. Y. to new offices at 81 Johnson Ave., Brooklyn 6, N. Y.

PRICE BREAK ON ELECTRIC EYE 35-MM CAMERAS!



Major Break-through in High Prices of Electric Eye Cameras!

**New BEAU LIGHTOMATIC 35-mm Electric Eye Camera
Now Offered in U.S.A. Under The \$100 Mark!**

The great new BEAU LIGHTOMATIC 35-MM ELECTRIC EYE CAMERA is creating a roaring boom in the photographic market, for it is the first precision-made Electric Eye camera introduced to sell for nearly half the usual price for an Electric Eye camera! Sales of this new BEAU Electric Eye camera sensation are shooting up to the highest levels in photographic history, and the factory expects the BEAU LIGHTOMATIC camera to outsell all other precision Electric Eye 35-mm cameras!

How can BEAU offer a precision Electric Eye camera at such a low price? Here's the answer! The huge, new, modern BEAU camera factory is dedicated to producing only one, precision Electric Eye camera! Three shifts,

working round the clock, are producing this amazing Electric Eye camera — and only this camera!

BEAU optical engineers have pioneered new production methods, resulting in a cut in manufacturing costs! Economies result, and they're passed on to you! Naturally, the highest standards of production control known to optical science are maintained every step of the manufacturing process—from rigid lens checks to body and shutter endurance tests—are exerted on the new BEAU LIGHTOMATIC. All these painstaking controls have but one object...creating a camera that costs you less to buy, less to operate, yet will guarantee years of pleasure-packed picture taking!

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the CAMERA CLUBS

by MABEL SCACHERI

Some thoughts on planning the annual club dinner, contest rules and club bulletins.



A camera club's annual dinner can occur at almost any time of the year, but many clubs have chosen the month of May, since it comes at the end of the club year, but not too far

into the hot weather nor too close to the vacation season. Well, whenever your club does have its annual dinner, do you feel that it is a stimulating social event?

I feel that many of these parties could stand considerable pepping up. As I gaze at the faces along the tables, I don't see many signs of rapture. The wives of members, who often come along just to see what it's all about, seem to have that "never again" expression. As for those prospective new members, I doubt if many are sold on joining up.

What makes these parties such a chore to attend? Perhaps it's those speeches by the outgoing officers who wish to thank members who have been such a great help in bearing the burdens of office, or it's the tedious passing out of awards. One by one the winners stroll up for their cup or plaque, shake hands three times, while flash shots are made "for the record."

Put life into ceremony

Honestly, isn't this kind of dull? I suppose the award winners get a bang out of it. But wouldn't they get the same amount of pleasure if they were all summoned at once, and the time thus saved devoted to showing the fine prints and slides which had won those awards? And if the outgoing officers are so grateful for help received, why not cut the clichés and state specifically that good old George made 25 phone calls when the president had laryngitis, and Alice pitched in and mimeographed the bulletin when Jim had to be out of town?

Since this is my day to complain, let me pick another topic to growl about. As I look through the club bulletins, it does seem to me that the club

(Continued on page 32)

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CAMERA CLUBS

(Continued from page 30)

contests have an awful lot of picky, persnickety rules. For example, if a slide has been masked so that it has three square corners and one round corner, it is discarded. Are those corners as important as the quality of the picture? Then again, slides and prints are easier to keep track of if they're titled, and so other shots are tossed out because they aren't titled. Doesn't all that sound to you rather school-marmish?

I think good titles add a lot to a picture but I'd rather have no title than some rather pointless tab such as "Misty Morning" or "Old Age" or "Gulls." Devote some evening to a discussion on how to think up a good title.

This is also a good time of year for a session on vacation photography. Each member might bring in his most admired vacation picture and his worst booboo. Vacationers might well be encouraged to take more pictures of life in these United States, the people and their significant environment, rather than more postcardy shots of lakes and mountains.

One club, or at least some of the members, went on a plane trip to Sweden. And which member put on the most applauded slide show afterward? A gal who made a point of showing the life of the people. In another club a highly appreciated program was presented by a woman who had skillfully portrayed the life of our Southwest Indians. Perhaps women take more interest in everyday life.

Bulletins are for reading

How these club bulletins do vary in interest! Many are perfunctory, just lists of ratings in contests and announcements of future events. Others are lively, chatty, and full of personal references. The Youngstown, Ohio, Photographic Society even publishes a birthday list, so members may send greeting cards. Almost everybody likes that sort of thing. Any device to add to the feeling of warmth and comradeship among members is an excellent idea.

Another bulletin asks for volunteers "to write an article for the bulletin on any subject." Sorry, but it won't work. You have to buttonhole each member, giving him a definite assignment and a deadline for producing his prose. Most people regard writing with the same delight as a trip to the dentist. Their anguish is magnified if they must think of a subject to write about. Make up their minds for them, and even mail them one reminder postcard per day until you get the manuscript. After these foot-dragging authors finally see their article in print, watch them carry a copy around and make everybody read it. They might even get some new members into the club by means of their glowing enthusiasm over that particular issue of the bulletin.—THE END

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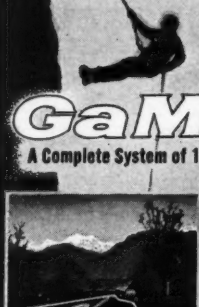

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ULTRA MINIATURE

by JOSEPH D. COOPER

First of a series: the complete story on equipment, materials, procedure for developing and printing your ultraminiature films.



In this month's column I shall deal primarily with developing tanks: who makes them, how they work, which is best for you.

Obviously, ultraminiature films must be developed with a

view toward getting the finest possible image detail so that the final enlargements will be sharp and clear. I want to assert that there is absolutely no reason why anyone, even without prior experience, cannot obtain the finest results by developing his films at home. There really are very few mysteries in developing. The trick, if any, is in faithfully following a routine. You don't need elaborate equipment.

At present, there are four tanks available for ultraminiature films:



Developing tanks for ultraminiature include the FR (\$4.70 with 16mm flange), Nikor (\$8.95 with one reel), GaMi (\$40) and Minox (\$12.50).

the GaMi and the Minox, which are daylight loading tanks, and the Nikor and FR Special, which must be loaded in the dark.

With the GaMi and the Minox, you place the film cartridge into a receptacle, shut the cover and wind the film onto the reel in a fully illuminated room. You do not have to work in

darkness at any time. The GaMi tank can be used satisfactorily only with the twin film cassettes made for the GaMi 16 camera and with the similar cassettes for the Mamiya-16, Minolta-16, Ricoh-16 and Minicord (which uses both a twin cassette and an individual cassette). I do not recommend using the GaMi 16 tank for film cassettes of the single-cup type since they will not load properly. The Minox tank is for Minox-size only and in my opinion provides the simplest and easiest way to develop these films.

With the Nikor and the FR Special tanks, you wind the film onto a spiral reel in a totally dark room. Then, you place the reel inside the tank and lock the cover. Subsequent operations can be performed with the lights on. Both of these tanks were designed to be used with the larger film sizes, the smallest Nikor tank taking one roll of 35mm film, and the FR Special accommodating 120 down to 35mm size.

Special reels available

You can obtain both 16mm and Minox-size reels for the Nikor tanks. Two or more of these reels may be stacked in one tank for simultaneous development.

Actually, I prefer to use the plastic FR Special tank. To adapt this tank for 16mm, you must buy a separate flange, which divides the film reel in two halves, each taking one roll of film. This reel is by far the easiest to load in the darkroom and you can load it with one or two films, as you prefer.

You do not need a large, well-equipped darkroom in which to load your films for development. A closet, bathroom, or other small enclosure which can be easily light-proofed will do. You can, of course, use a changing bag, but I do not recommend it. Dust and lint may collect in the bag, and the film often gets scratched.

Next month I will describe in detail the various loading procedures for the different tanks.—THE END



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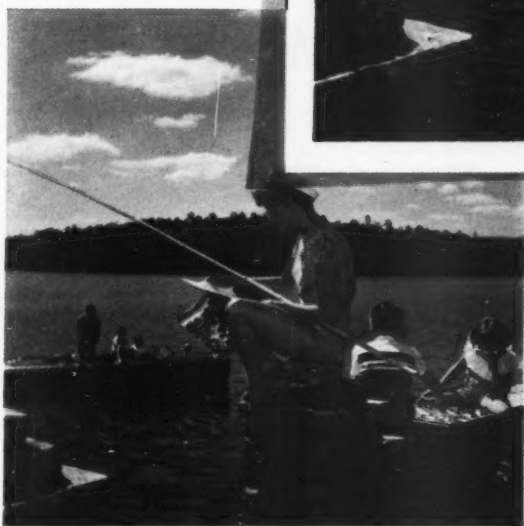
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35MM

by JOHN WOLBARST

Texture: How to go about reproducing the "feel" of a 3-dimensional surface on a single plane.

In my dictionary the third definition of the word texture is: "The structure of the surface of any work of art or the simulation of the surface structure of the skin, garment, etc., of the object represented in paint, stone, or other medium." For other medium, substitute photograph and we have nailed our problem down.

In a nutshell, we are trying to utilize a single smooth surface—the print paper—to simulate an infinite variety of surfaces that appear in everyday subjects in such a manner that the viewer's senses can be stimulated to "feel" smoothness, or roughness, or some other characteristic which is directly related to the sense of touch.

You need not look at many 35mm photographs to realize how often the attempt is unsuccessful.

There are certain physical problems inherent in 35mm photography which contribute to the failure to reproduce texture. For example:

The small size of the negative; the limitations on image sharpness imposed by the average lens/film combination; the long film, which may make it necessary to scramble many types of subject matter on a single roll; the unsteadiness of the photographer; the inadequacies of focusing and enlarging systems. All these, and others, can have a pernicious effect on even the best thought out attempt to reproduce texture in a 35mm photo.

Technique is essential

But much more important than any of these is a general lack of understanding of the importance of texture and an abysmal ignorance of some of the basic principles relating to its reproduction in a photograph. I have been amazed to see well-known and otherwise skilled professional photographers literally breaking their backs trying to reproduce a certain texture on 35mm film while disregarding the most elementary technical procedures.

To most people "texture" brings to mind the nap of a rug, the roughened hide of a laborer's hand, the coat of a terrier, or some similar surface. No less important are the textures of a beautiful woman's skin, a rose petal, a marble bust, or a gleaming new automobile fender. Smoothness, softness,

and delicacy are as important texturally as roughness, hardness, and coarseness, and different techniques are necessary to reproduce them.

Without attempting to lay down any rules I would like to suggest certain basic technical principles which, if observed, will lead to much greater success in reproducing texture than if they are ignored. In my experience they apply equally well to both color and black-and-white photography in most cases.

Original conception: Before attempting to simulate a texture you must have a reasonable mental image of what you're trying to convey. For example, in picturing the same nude, one photographer may present a body of cool, smooth, blemish-free alabaster, while another prefers to render an anatomical detail so as to show a network of tiny wrinkles, pores, and hair follicles on a slightly moist skin. Or, in photographing a tapestry one must decide which is more important—the "feel" of the weave or the most precise delineation of figures woven into it. The two aims may require completely different techniques.

Image sharpness: It is virtually impossible to render texture properly when detail has been lost due to incorrect focus, camera or subject movement, however slight, or just poor lens quality. In the case of a rough-textured surface, it is the very form of the fine details which gives the sensation of texture, and failure to reproduce these details with clarity reduces the textural effect. In the opposite direction, smoothness (of marble, china, skin, etc.) is lost when the focus is unsharp because then the image of the film's graininess pattern begins to intrude on what might otherwise be an almost textureless surface.

It's not necessary that the entire picture be sharply focused. However, it is essential that all or most of those areas in which the sensation of texture is to be concentrated must be sharply reproduced. If they are, then adjacent totally unsharp areas can heighten the texture in the areas of sharp focus. Selective focus is as useful in concentrating attention on texture as on subject matter.

Graininess: I believe it should be held to a minimum. Although some people profess to admire photographs in which the overwhelming impression is one of graininess, I do not. The pattern of graininess due to film and development can only detract from the

(Continued on page 56)

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THE WELL TRAVELED CAMERA

by the editors

Driving to Mexico? The adventures of one husband-wife team will acquaint you with some of the pleasures of the trip.

Since few travelers venture over the Pan American Highway under their own steam as far as Mexico City and Oaxaca, we asked Angelo Lomeo and wife Sonja Bullaty to recount some of their experiences on their trip.—Ed.

"It was summer," said Angelo, "and a hot one! So in getting ready for our trip we knew we'd have to think first about weapons against the biggest bane, heat."

"Andy lined the trunk of the car with Fiberglas—two thick layers under the top," Sonja said.

"It's great stuff," he added. "But that's not all. So's foam rubber. You see, inside the trunk we put a kind of waxed fiber suitcase."

"It's sort of like those Red Cross suitcases," Sonja explained.

"We used foam rubber to line this, top and bottom and sides, and kept all our film, both exposed and unexposed, and some equipment there. It was well protected, even on the hottest days."

We asked them about how much film they took for their month's vacation, and the usual questions about equipment and processing.

"I can tell you quickly," Andy said. "Five cameras: two Mirandas, two Rolleis and a 4 x 5 which, as it turned out, we never used. However, we had black-and-white and color in the 35's and 2 1/4's, and could swap off whatever camera or film we weren't using at the time."

"Don't forget the two meters, Andy. And the tripod. Believe it or not, we did use it—for church interiors, and for long, long color exposures in the streets after sunset."

"Film?" queried Andy. "We took about 60 rolls of color and 100 black-and-white. Didn't use it all, but we were glad to have had more than enough, just in case."

"And lenses, Andy. For the 35's we had a wide angle, a normal lens (50mm), 135 and 300mm."

"The long lenses were darned useful, too," her husband said. "Made getting faces out of a crowd much easier when we didn't have a chance to speak to the people."

"And they can be so friendly if you

treat them as equals," countered Sonja. "Honestly, as soon as you show that you're not going to cheat them or be mean to them, and if you're fond of their children, they smile and are very helpful."

"Of course, some of them didn't want to have their pictures taken. But then we asked them why, and let them handle the camera."

"The kids especially like that," Andy interrupted. "And having a guide helped."

"Oh yes," Sonja said. "We often had a guide, usually a little boy, who'd show us around odd places. Not the



SONJA BULLATY

"We got to know the people."

usual tourist traps. We'd pay him a few pesos and he was content. And if we didn't have a guide and had just arrived at a new village, do you know what we'd do?" We shook our head.

"Well, we'd go straight off to the market place and, being hungry types most of the time, would look for the place where bread was sold. They'd show us the commercial, packaged bread, because they thought that's what Americans would like. But we'd say, 'No, we want the home-made bread,' and they'd smile and be pleased and sometimes lead us around to somebody's kitchen and there was all that beautiful bread. You should have smelled it! And it was so good, too."

"That's one way we got to know the people. You should have heard Sonja."

(Continued on page 40)



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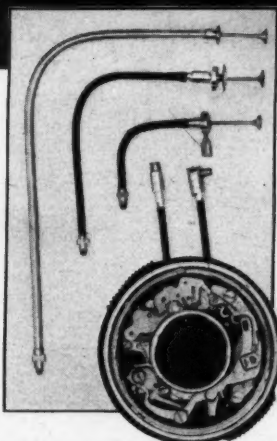
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TRAVEL

(Continued from page 38)

All the way down through the States, when she wasn't driving, she was curled up in the back seat with her Spanish book, practicing. Got on very well, too."

"Another thing. If the people seemed reluctant about being photographed, we'd sometimes use a routine. One of us would pretend to shoot a building or monument. They would watch, naturally. Meanwhile the other would be off to the side, quietly taking their pictures."

"Got some of my best that way."

"Listen, Andy, we ought to say what we thought about driving and seeing."

"That's right," he agreed. "You know, on a hard trip like that, when you're driving almost constantly to get to a place, it's just impossible to try to drive and shoot at the same time."

"They don't mix," Sonja explained. "You get too tired. So after a long haul you've got to stay in a place for a few days if you hope to shoot intelligently and to really see things."

Approach to exposure

We asked about shooting problems, brightness of light and so forth. Andy filled us in.

"It sure is bright. We always had to use the meter. We got as close as possible to the subject sometimes, but in spots like market places, we took overall readings. We decided what effects we wanted, whether details in the shadows or silhouettes and what have you, and exposed accordingly."

"We shot the new Plus-X in the 35mm," Sonja added, "and Verichrome Pan in the 2 1/4. And we doubled the manufacturer's ASA rating for the black-and-white; used the usual recommendation for color."

Andy knew our next thought: "Black-and-white was developed at home—heaven knows when the mail would get out of some of those places if we'd posted it—by time and temperature, 3 1/2-4 min. in UFG. Impossible for us, under our traveling conditions, to process en route. No effective control of soup temperature."

Would they go again?

"Can't wait," Andy said.

Sonja smiled. There was almost a rapt glaze in her eyes. "That was such good bread," she said.—THE END



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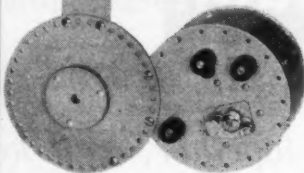
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Want to make enlarged or cropped color duplicates or black-and-white negatives from your favorite 35mm slides with a twin-lens reflex? Here's how.



For some time now I've been using my twin-lens reflex to make enlarged color duplicates and black-and-white negatives from 35mm slides. The gadget that

enables me to do this simply is the \$24.95 Accura Slide Duplicator, Model VI. While this unit was originally designed to make 1:1 duplicates with a 35mm camera, I've found that it makes images approximately 1 1/2 x 2 1/2 in. when used on a 120 twin-lens reflex. I mount such transparencies centered in a half-120 mask made by Gemounts, 5817 Sheridan Ave., Detroit 13, Mich. The Kimac Co., Old Greenwich, Conn., and Porter Mfg. and Supply Co., 2836 Sunset Blvd., Los Angeles 26, Calif., also make similar mounts. (In baby reflexes normally producing 1 1/2 x 1 1/2 shots on 127 film the image you get is slightly larger than 1:1.)

How the duplicator works

The duplicator (see right) consists of a three-element supplementary lens mounted in a tube. At one end of the tube is a holder for 35mm slides which accepts glass or cardboard mounts. The other end of the duplicator is threaded to fit a Series VI filter adapter ring, which fastens the assembly onto the taking lens. By loosening a set-screw at the rear of the unit you can rotate the slide so that it will be aligned correctly with the film inside the camera.

To check this visually on cameras with bayonet filter mounts, first place the entire assembly on the upper or viewing lens. After the image is lined up, use the assembly in the same position on the lower or taking lens. If your camera doesn't have bayonet mounts, check the image on a ground glass taped across the film plane. Open the shutter on T or use the B setting and a locking cable release. Once you've got the image lined up, mark the position on the taking lens mount and filter adapter so you don't have to refer to the ground glass and make the same adjustments each time you mount the duplicator on the camera.

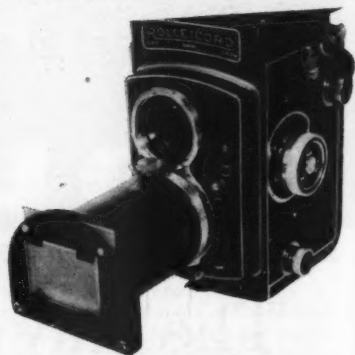
The duplicator works properly when the camera lens is set at infinity. The image from the duplicator won't appear particularly sharp when the camera lens is wide open. You must close down to f/16 or f/22 to get adequate definition.

Now for some actual slide copying. For contrasty or average slides I've gotten best results copying on regular Anscochrome. It has lower contrast than Ektachrome, and therefore holds both shadow and highlight detail better. Ektachrome is fine for duplicating if the originals aren't too contrasty. It's also useful as a color slide duplicating film where more contrast is needed, as when you're copying flat originals.

Ektachrome renders yellow and reds a bit on the orange side. Blues tend toward the blue-green.

Anscochrome tends to render blues purplish, yellows slightly on the greenish side and reds somewhat magenta.

You can take advantage of these differences in rendition to make color corrections. For instance, if your



The Accura Slide Duplicator in position on a twin-lens reflex.

original has a sky which is too blue-green, copying on Anscochrome will tend to counteract this. On the other hand, if yellows in the original are too orange, then copying on Anscochrome will tone it back to yellow. It's standard practice commercially to copy Ektachrome on Anscochrome, and vice-versa, in order to correct reproduction errors present in each film.

It's also possible to copy your slides on Kodacolor. The original slides should be of rather low contrast. If they aren't, you will lose detail in highlights or shadows or both, and there may be considerable color distortion.

While several types of lighting are suitable for duplicating, I prefer to use
(Continued on page 57)

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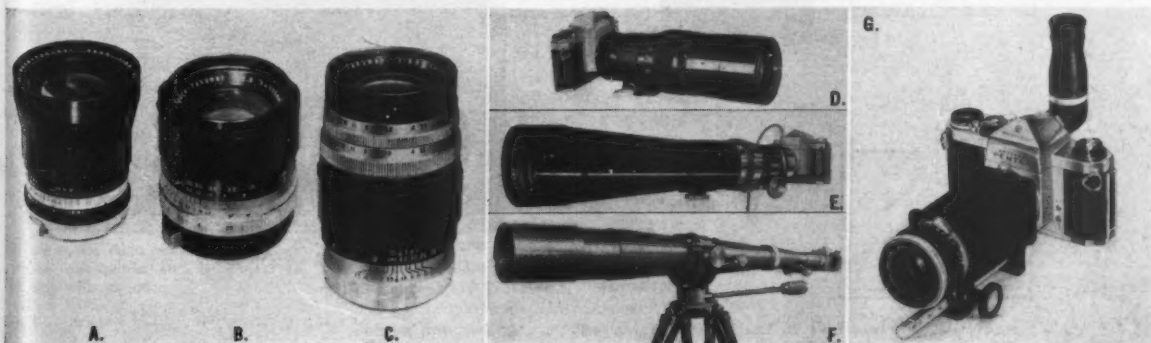
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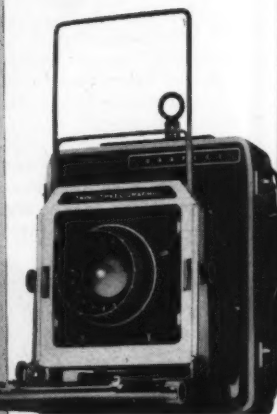


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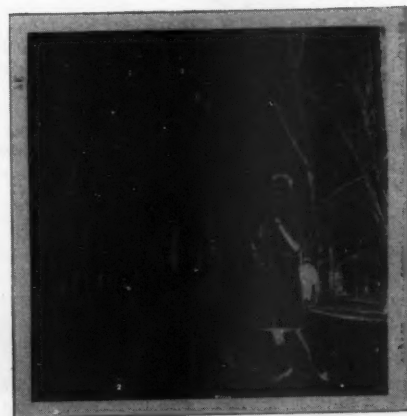
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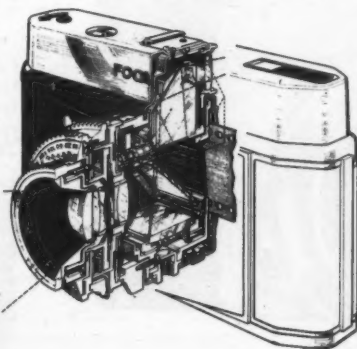
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BEHIND the SCENES

The French touch in reflexes—New way to produce rare earth glass—Shutter acts as diaphragm on new 35mm—Two additions to the 35mm reflex field.

While most 35mm eye-level reflex designers are sticking closely to the upswinging mirror to reflect the image through the prism to your eye, the French are having none of it. The outward appearance of the Focaflex (first reported in MODERN, January 1959) is rather similar to other leaf-shutter reflexes of the Contaflex, Retina Reflex, Bessamatic type. It has a completely automatic diaphragm, leaf shutter with speeds to 1/250 sec.

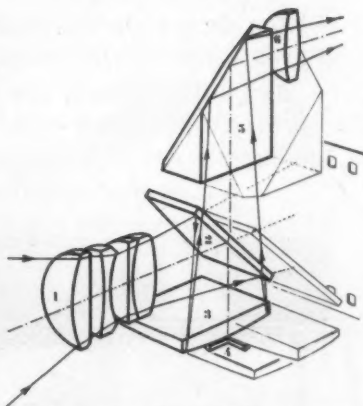
In examining the camera rather closely we noted that the prism, us-



Focaflex achieves smooth prismless exterior by unusual innards.

ually a very prominent topside feature of every 35mm reflex exterior, is nowhere to be seen. Now, however, that the camera is in production and being sold in Europe, with a good chance that a few may drift here, we have the inside story—and it's unusual.

The image formed by the lens (see [1] in the diagram above right) is directed by a semi-reflecting mirror (2) downwards onto a plano-convex silvered mirror (3) where the image is actually formed and focused with the aid of a split-image, rectangular mirror rangefinder (4). This image is then transmitted upwards through the usual sort of prism (5) and then magnified by a typical meniscus lens (6) before it reaches your eye. Before and after exposure, a baffle which you can see behind the mirror (2) covers the film, preventing it from being fogged. During exposure the mirror (2) swings downwards, closing sandwich-



Here's the Focaflex optical system. See text for the full explanation.

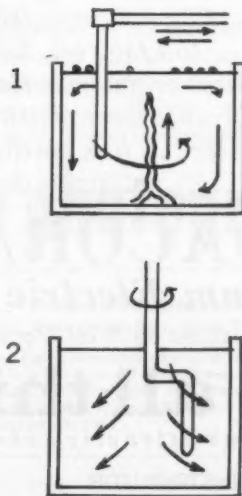
like over the plano-convex mirror (3).

While most radical single-lens reflex designs in the past (such as the Bronica 2 1/4 x 2 1/4, which has a mirror that slides downwards) have been used to achieve a shorter lens-to-film-plane distance, the Focaflex mechanism offers only a slightly more compact, prettier camera. But after all, the camera is French.

Stirring news, lens dept.

A new method of stirring the rare earth glass ingredients in a melting pot is claimed by the Osaka Industrial

(Continued on page 46)



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BEHIND THE SCENES

(Continued from page 45)

Engineering Laboratory of Japan.

The company's engineers explain that rare earth optical glass is usually stirred in a platinum melting pot with a platinum stirrer rotating at about 80 rpm. However, the stirring rod agitates the surface ingredients (see diagram [1] page 45); causing bubbles. These, it's said, are sucked into the molten glass mass and form a vein of foam or unhomogeneous substances in the center of the pot. This mass, which can form from 20 to 60 percent of the entire contents of the pot, is totally useless.

By using a crank-shaped stirring rod (2) which does not agitate the surface and causes no bubbles, the formation of the central waste glass is completely eliminated. The new rod rotates at 200 rpm. Tests indicate that the total amount of good glass turned out in one pot now averages 90 percent when rare earth glasses are made and 100 percent with other glasses such as borate. Vastly reduced manufacturing costs plus improved quality are claimed for the new method.

Detective Baba

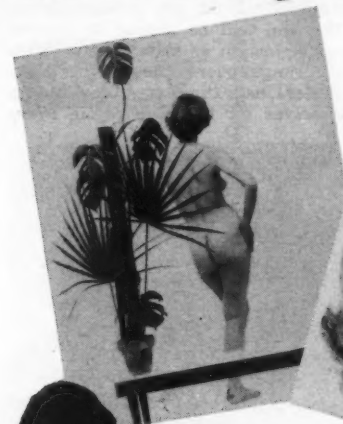
Not all of "Behind the Scenes" is elicited from manufacturers or gleaned from foreign publications or found in the wind. Sometimes real detective work is involved. Take the case of a new Minolta camera, for instance. Our Japan-based detective, correspondent



Just a calendar? Far from it. See what Baba found in photo page 48.

Tsuneo Baba, in examining the yearly calendar put out for 1960 by Minolta detected an unusual camera being held by a model on the July and August page. Baba made enlargements of the calendar, and—lo and behold!—the
(Continued on page 48)

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BEHIND THE SCENES

(Continued from page 46)

Minolta Uni, not yet released here.

The Uni will be unique. It has no lens diaphragm as such. Instead, this 35mm rangefinder camera (with built-in meter) uses the leaf-shutter blades themselves for the diaphragm. Press



Enlargement of camera held by model, page 46, reveals Minolta Uni.

the shutter release, and the shutter opens just to the pre-determined diaphragm opening and no further. Advantage: no wasted energy, since the shutter opens no further than necessary. (All other leaf shutters up to now open fully no matter the aperture used.) And there's a monetary saving on doing away with the additional diaphragm leaves, too! What it means in optical advantages—if anything—remains to be seen.

While on Minolta, word hath it that the SR-3, long rumored to be a more automatic SR-2 single-lens reflex (at a higher price, of course), will be nothing of the sort. Instead, it's a leaf-shutter single-lens reflex with a quick-return mirror.

About to be released: focal-plane single-lens reflexes from Yashica (with



Two new focal-plane shutter reflexes will make the U.S. market soon.

55mm f/1.9 automatic lens), from Kowa (with 50mm f/2 Prominar automatic lens), and from Mamiya (with 58mm f/1.7 automatic lens).—H.K.



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3.5E2

Rolleiflex

**3.5E2
AND
2.8E2**



Rolleiflex
2.8E2

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What's Ahead?

by LLOYD E. VARDEN

How good are the color photofinishing labs? One survey shows that they do only fair work.



The spectacular growth of color finishing facilities has certainly improved the speed of service in most parts of the country, but how about quality and consistency? I studied the results of a test survey indicating that

there is room for improvement in these aspects of color finishing.

Carefully exposed rolls of 35mm Kodachrome of the same emulsion were sent to eight different Kodachrome processing firms. Two and four weeks later, these same labs were sent additional exposed rolls of the same emulsion. The exposures were made of still-life subjects under controlled illumination and the rolls were mailed to the labs immediately afterward. Three bracketed exposures were made of each subject—one normal (according to a meter reading), and the others one-half lens stop on either side of the first one.

1. Of the first eight rolls sent out, only three were returned that could be considered normal in overall density and color balance. Three rolls had about the same overall density as the assumed normal rolls, but one had a bluish balance and the other two a strong magenta balance. The remaining two rolls had an overall density corresponding to about one lens stop underexposure and a bluish-magenta color balance.

2. The second eight rolls included five that were more or less normal in overall density and color balance, but slightly on the magenta side.

Only one roll was dense (by about 1½ stops) and it had a heavily yellowish balance. The two remaining rolls were light in density by nearly one lens stop and bluish-green in balance.

3. Two of the final eight rolls were almost identical with the three normal rolls of the first eight. An additional roll could have been put in this group if it were not for its slightly bluish balance. Two rolls were about one-half lens stop too light, but almost normal in color balance. The remaining three were too dense by about 1½ stops, and quite magenta in balance.

4. Only two processing labs of the eight had good consistency in both

overall density and color balance. The results from the other six labs followed no particular pattern and variations among labs were considerable.

5. Only a few transparencies showed physical defects such as scratches, spots, fingermarks, etc. But the accuracy of mounting was, in several instances, unacceptable.

6. Not a single roll was lost in mailing or from other causes, although three rolls were returned with at least one transparency missing.

In the Kodacolor tests, no evaluation of the color negatives was made. Only the color prints were considered. The test was conducted in the same manner as for Kodachrome but with ten labs instead of eight.

Results with Kodacolor

1. From the first ten rolls of Kodacolor film that were sent for processing, 106 out of a possible 120 prints were returned. One roll was lost or damaged beyond repair in processing, and two negatives from one roll were missing.

The prints from four rolls were of excellent overall quality and consistent within each roll, as well as fairly consistent from roll to roll. Minor differences in the white borders existed, varying from bluish-white to yellowish-white.

The prints from three rolls were consistent within each roll, but the color balance of two rolls was very yellowish and the third a sickly greenish balance.

The prints from the remaining two rolls were sad specimens. The whites were badly stained, the color balance bluish in one instance and reddish in another. There was no consistency from print to print. All of the prints were overly dense.

2. All 120 prints were returned from the second lot of ten rolls, but the results were even less acceptable.

Only the prints from two rolls were more or less neutral in color balance and consistent throughout. Prints from the other eight rolls varied all over the lot, and only about 30 percent were of normal density. You could find just about any type of color balance to meet your fancy. Some of the prints were as satisfactory as one could expect, but the majority were quite unacceptable.

3. No rolls were lost in the third test, but five negatives were missing—three from a single roll.

This third batch came out better than the first two. Again, the prints from four rolls were consistent in density and color balance, both of which could be considered normal. There was less variation in the white borders.

The prints from five rolls were acceptable although density variations, color balance differences, and stain differences in the white borders were evident.

Prints from only one roll were completely out of line. There was no consistency in either color balance or density and not a single print was acceptable.

4. Only two of the ten color finishers produced consistently acceptable results, although two or three others were close. The results from three finishers varied considerably, but many of their prints were completely acceptable. Two finishers obviously did not control their printing and processing operations adequately. One exercised no control at all.

The main difficulty in deriving meaningful data from such tests is the near impossibility of establishing (and holding constant) an adequate control standard. Color products that are conveniently processed with a hand setup lend themselves more readily to maintaining a control standard, but still it is not easy.

There is another difficulty. Suppose that the color film emulsion used in the test has an inherent magenta color balance. A lab whose processing is highly controlled with the proper tolerance limits would reflect this constant off-color balance.

Another lab, whose processing is equally well-controlled, might give a greenish balance with neutral balanced color film emulsions. This greenish balance would cancel out the inherent magenta in the emulsion, and the lab would appear to give better results.

So these tests cannot be conclusive. But they do indicate considerable variations among the results from finishers. Anyone who wants high quality must choose his color finisher carefully.—THE END

Contests

Both professional and amateur photographers may enter a forthcoming **Music Photography Contest**. Entries will be received until December 1, 1960. For further information write: Music Photography Contest, American Music Conference, c/o The Philip Lesly Company, 100 West Monroe Street, Chicago 3, Illinois.

General Electric has started a year-long flash photo competition for amateurs. The contests are bi-monthly, and the remaining closing dates are the first of May, July, September, and November. Each contest will have 575 winners with cash prizes totaling \$3,625. No entry forms are necessary for the **Flash for Fun Contest** and contest information will appear on G-E flashbulb packs.

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the LARGE CAMERA

by ANDREAS FEININGER

Staff Photographer for *Life Magazine*

An easy way to make studio setups
if you don't have an assistant to
push the props around.



A recurring
problem in large-
camera photog-
raphy is how to
best arrange a
number of small
objects in such a
way that they ex-
actly fill the frame
of the picture. The
usual procedure is
to make a tenta-

tative layout of the objects on a suitable
background, check it on the ground
glass of the camera, then repeatedly
make corrections in the arrangement
until finally the composition is satis-
factory to the eye.

This time-honored method works
fairly well if there is an assistant who
can arrange the objects while the
photographer directs him from behind
the camera. But if a man is alone,
things can get rather complicated and
time-consuming, particularly if a rela-
tively large layout is involved and the
camera is high up on a tripod, so that
the ground glass can be checked only
by standing on a chair or stepladder.

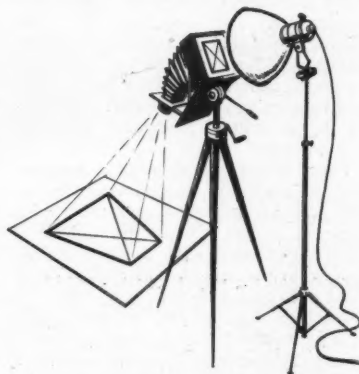
Comparing at a glance

Here is an easy way out of these
difficulties. On the ground glass of your
camera, outline a rectangle in the exact
proportions of the desired photograph.
(The simplest way of making this
rectangular outline is to cut narrow
strips of black photographic adhesive
tape and affix them to the ground
glass.) Next, set up the camera on a
tripod at a suitable height over the
background on which the collection of
small objects is to be placed. Mount a
150- or 200-watt lamp in a reflector
and set it up directly above the ground
glass in such a way that the rectangu-
lar outline indicating the boundaries
and proportions of your future picture
will be projected through the lens and
onto the background. If the image on
the background is too small to contain
the objects to be photographed, in-
crease the distance (height) between
camera and background. If the image
is too large, decrease the distance.

Now, depending on your background
material, you can either trace the out-
line of the contemplated picture with a
pencil, or you can mark the boundaries

with strips of black cardboard or tape.
Then arrange your objects in such a
way that they exactly fill the indicated
space, take away the lamp which pro-
jected your outline, focus sharply, stop
down the lens, and make the shot.

This method is particularly useful
when the picture has to be shot, not



How the projected outline helps in
composing a picture taken at an angle.

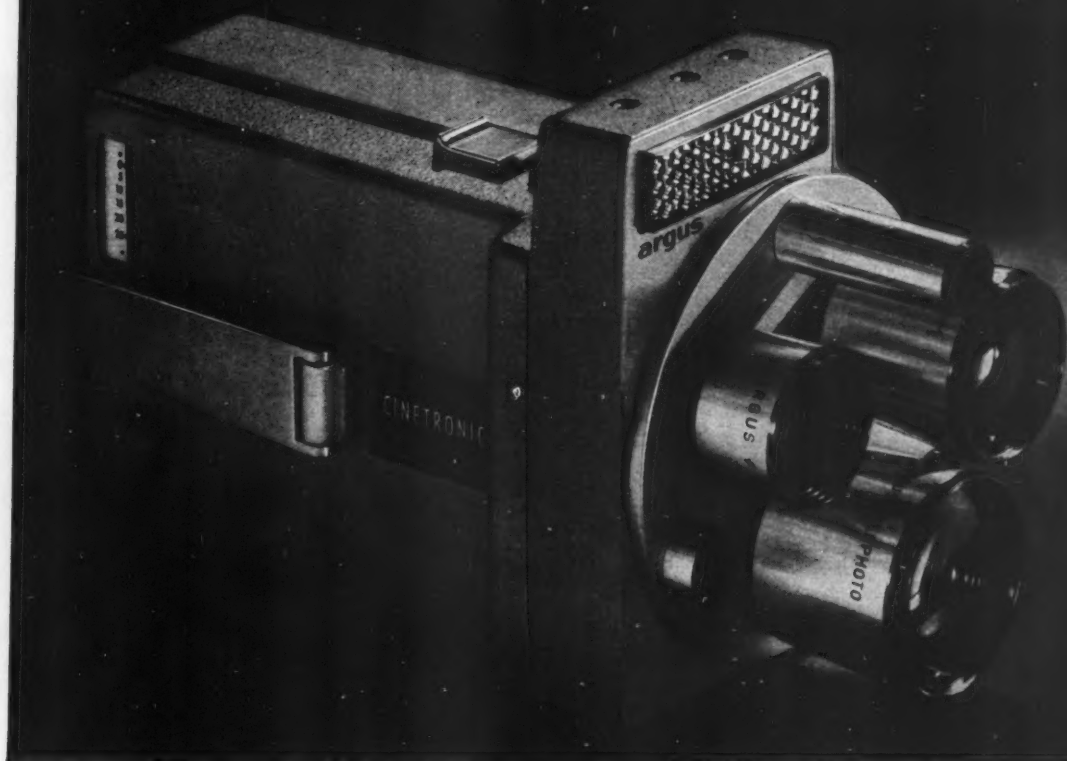
perpendicular to the background, but
at an angle. In this case the different
objects to be photographed must, of
course, be arranged in the form of a
trapezoid in order to compensate for
"perspective" and to evenly fill the
rectangular frame of the picture. (If
the objects were arranged in a rec-
tangle, then they would appear as a
trapezoid composition on the film.)
The rectangle taped onto the ground
glass will automatically be projected
as the required trapezoid (see illus-
tration above). In other words, no
matter what angle you shoot from, the
projected frame will give you the
exact area that will form a rectangular
image on the film.

One thing to remember in shooting
obliquely: if you work with a view
camera (as opposed to a press camera
without tilts or swings) you should, of
course, use its back tilt to bring the
near and the far sides of the projected
image into sharp focus simultaneously.
—THE END

IN NEXT MONTH'S MODERN

What's the secret of those
beautiful black-and-white
landscapes from Europe?

FROM ARGUS... THE COLOR-PICTURE SPECIALISTS



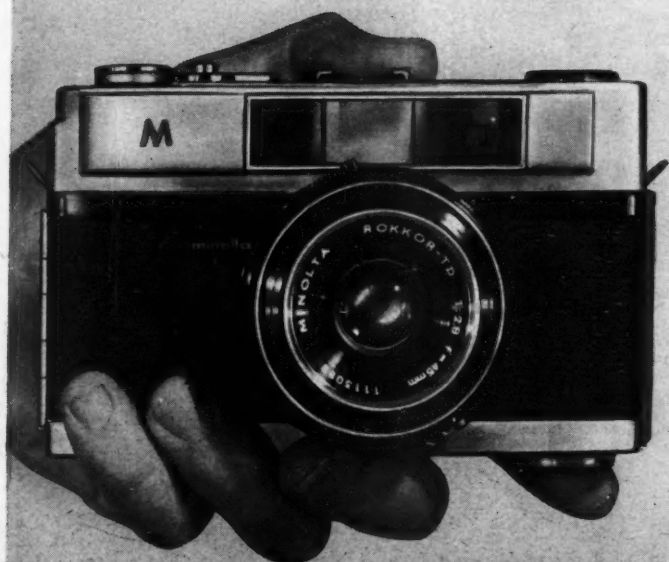
N*ew Argus Cinetronic makes movies as easy as snapshots... electric-eye lens adjusts itself while you shoot, so every frame is bright and color-perfect even when the light changes in mid-scene. Just aim, shoot, enjoy. Three lenses vary your movies with long shots and close-ups... and with the sharpness no single variable lens can match. Each lens has its own optical viewfinder... that automatically swings into position as you switch lenses. Inside, precision sprockets hold film in perfect register... take all the jiggle and shiver out of 8mm movies. You're only \$15.00 down away from flawless movies... why wait!*

You can set the Cinetronic manually when you want to, and the built-in footage indicator always shows you how much film is left. You get a 12-foot run with every winding and the continuous run lock lets you star in your own movies. See the Cinetronic at your favorite Argus dealer soon. PICTURE IT NOW... SEE IT FOREVER

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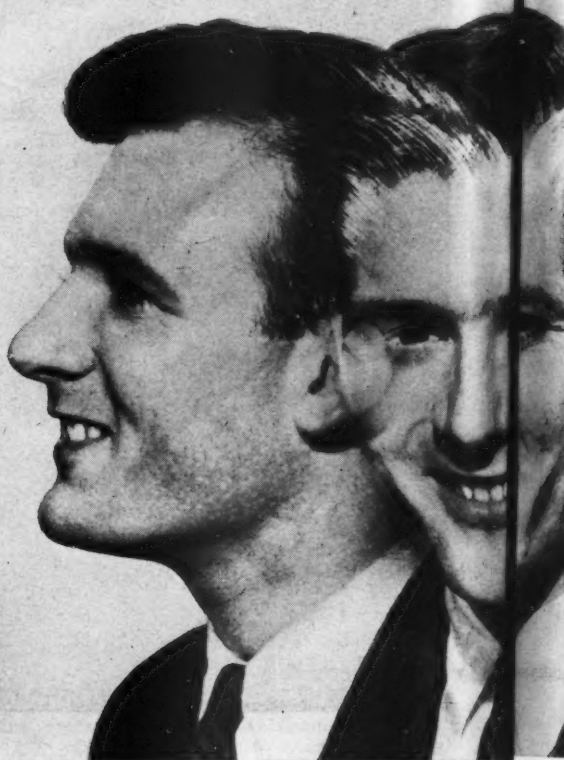
TWO NEW

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MINOLTA A-5 \$59⁹⁵

For the amateur who wants professional features without paying professional prices.



How Minolta Controls Quality AND Price

Why have Minoltas consistently, through the years, been rated "best buys" by independent testing organizations? Because of price? Partly. Because of mechanical precision and rugged, lifetime construction? That too.

But largely because of incredibly sharp, high resolution Rokkor lenses. And Minolta makes the Rokkor lens from start to finish. They even make their own rare earth glass in platinum pots—then grind, polish, coat, mount, and assemble. Quality is maintained while costs are kept down.

That's why Minolta is seldom matched in quality...never matched in price!

Ultra sharp f:2.8 Rokkor lens • 1/1000th second shutter speed Automatic parallax correction • Super bright Lumi-frame viewing

In 1957 the Minolta A-2 revolutionized medium priced 35 mm cameras. It created a new standard of quality and value. It was consistently rated your best buy by independent testing companies. Today the A-2 legend is reborn in the new A-5.

Examine the lens. An ultra sharp 45 mm, f:2.8 Rokkor. Five elements, two crafted of rare earth. Corrected for brilliant color work. All glass-to-air surfaces coated.

The versatile shutter goes from B and 1 sec. to a new freeze-action 1/1000th.

Look through the easy to use rangefinder-viewfinder. Watch the ultra bright Lumi-frame automatically compensate for parallax. You'll never chop off a hair, let alone a head!

Check the other features: matched shutter and aperture rings coupled to LVS numbers 3-19; single stroke film advance automatically counts frame, cocks shutter, prevents double exposure; M and X flash sync; self-timer; rapid rewind; film speed reminder.

Now look again at the price. Who else but Minolta could offer so much quality for only \$59.95?

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MINOLTA SR-1 \$179⁵⁰

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Minolta shatters professional prices again! The 1955 Autocord did it for twin lens reflexes, matching quality-optics and features with cameras costing \$100 more. Now meet the SR-1, a new single lens reflex for the most critical professional. Examine it feature by feature:

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Note the extra conveniences: flick-in bayonet lens mount; self-timer with built-in bypass; magnified counter with automatic zero return; fast-loading take-up spool; separate FP and X sync terminals; etc.

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Your choice of 9 lenses

Standard: Auto Rokkor 55 mm, f:2, with camera; **Wide Angle:** Auto Rokkor 35 mm, f:2.8, \$119.50; **Telephoto:** Rokkor 100 mm, f:4, \$59.50; Auto Rokkor 100 mm, f:3.5, \$99.50; Rokkor 135 mm, f:4, \$69.50; Auto Rokkor 135 mm, f:2.8, \$139.50; Rokkor 200 mm, f:3.5, \$179.50; Rokkor 250 mm, f:4, \$215; Rokkor 600 mm, f:5.6, \$550.

All these precision accessories

Angle Finder, \$14.95 • Extension Tube Set, \$19.95 • Lens Hood, \$5.95 • Copying Stand, \$49.50 • Critical Focusing Eyepiece, \$14.00 • Filters, \$6.95 • Leica or Exakta Mount Adapter, \$4.95 ea. • Polarizing Filter, \$19.95 • Soft or Hard Leather Case, \$15.00 • Cable Release, \$1.95 • Neck Strap, \$2.95 • Accessory Clip, \$1.95 • Extension Bellows, \$24.95 • Microscope Adapter, \$19.95. (Additional accessories available soon.)

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there where your finger wants it; this with precise, smooth action, avoids blurring camera movement, gives pictures the full resolution of the fine Voigtlander Lanthar f 2.8 lens.

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35MM

(Continued from page 36)

inherent texture of the subject. If you love grainy-looking prints, that's one thing. But don't confuse the pattern of scrambled eggs or bullets (depending on the developer) with the texture of the subject.

Film and developer: What I've mentioned about image sharpness leads logically to my belief that slow or medium-speed fine-grain films are the logical choice for showing texture. For rough effects I would combine a high sharpness film with a high sharpness developer, so as to produce maximum detail. Examples: Adox KB-14 or Kodak Panatomic-X developed in FR X-22 or Agfa Rodinal, or some of the other combinations given in my charts in the November 1959 issue of MODERN.

For a rendition of smoothness I would stick to fine-grain films but use a fine-grain or ultra fine-grain developer. You might even go to a somewhat faster film, such as Kodak Plus-X Pan. Development in Kodak Microdol, FR X-33B, etc., should knock off just enough of the sharp edges of detail to produce a beautifully smooth-looking effect.

In general, high-speed films are at best less desirable, and in some cases totally unsuitable, for rendering texture. When they are developed for maximum sharpness, graininess obtrudes; even with fine-grain development the graininess pattern becomes noticeable in big enlargements of smooth surfaces.

Lighting: Side-lighting is almost essential in order to render non-smooth textures correctly. It need not be harsh, as from a spotlight. North light from a window, glancing across a

IN NEXT MONTH'S MODERN

Ring-a-ding 35mm color pictures and how to take them.

skin, can delineate every pore and line with startling effect. Yet the light may not be intense. The same light delivered flat on the subject will suppress textural effects to a most remarkable degree.

The look of sharpness is closely connected to the apparent contrast in the picture. Example: photograph a sheet of white paper and it is difficult to see anything. But draw a detailed black grid on that paper and it becomes a lens test pattern. Photograph a brick wall flooded with the even light of an overcast day; then photograph the same wall at mid-afternoon of a bright sunny day with the brilliant rays hitting it at an angle. It will be an education in how apparent sharpness is affected by the subject contrast, both in terms of the

MODERN PHOTOGRAPHY

tones of the subject matter itself and in terms of what the lighting does to differentiate the tones of the subject.

It follows from this that soft, even lighting enhances smooth textures and is a logical choice for such work.

Camera angle: It is more difficult to reproduce rough textures when the camera is aimed straight at the subject (particularly a flat one, like a rug) than when the camera is at an angle to the subject. This difficulty is enhanced by flat lighting. However, a moderate angle introduces a side view, as well as a top view, and whatever structure the subject has becomes more apparent.

Filters: Colored filters can help enhance textures in various ways. Outdoors an orange or red filter will reduce the effect of blue and ultraviolet light in shadow areas, thus making the shadows darker and increasing the contrast in the surface of stone, sand, snow, etc. Where two pale tones (such as blue and yellow) might be almost indistinguishable in a black-and-white print, suitable colored filters can separate them and help to emphasize differences in texture.

This by no means covers the entire subject of photographing textures. But I'm sure that if you keep a few of these points in mind you'll be more successful in capturing the "feel" of subject matter.—THE END

MODERN COLOR

(Continued from page 42)

electronic flash with daylight type film. Electronic flash light is cool, and the rapid flash minimizes danger of blur from equipment vibration. The color quality of the light and its intensity are generally constant from one flash to the next. There's also less tendency for the dupe to pick up extra contrast, as happens with other light sources.

To prevent excess bluishness in my dupes I've found an 81C filter useful with Ektachrome, an 81A for Anscochrome. For Kodachrome which is to be printed by a photofinisher I make dupes of outdoor scenes using no filter. For scenes originally shot with flood or flash I use an 85C filter.

Make your own exposure tests

Now to exposure. Since individual flash units vary considerably in light output, please consider the following figures as suggestions only for your own tests. With the light from a small portable unit aimed directly at an average density slide, try a series of exposures at an aperture of $f/22$ with the flash 4, 5½, 8, 11, and 16 in. from the slide. If your lens stops down only to $f/16$ try distances of 5½, 8, 11, 16, and 22 in. Examination of the finished dupes will tell you which working distance is correct.

If you prefer to use floods for duplicating, try one 500W-3200K lamp

(Continued on page 60)

May, 1960

FULL Remote Control automatic slide projector

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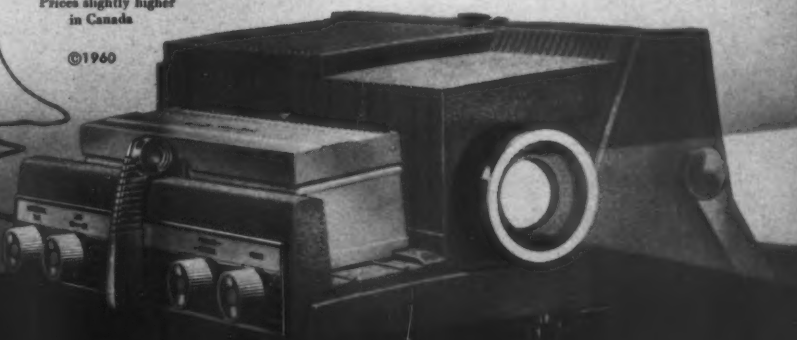
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- A trip to Suwa—home of Yashica—located in the picturesque Japanese Alps. A guided tour of Yashica's ultra-modern factory buildings where you will see, first hand, how Yashica produces the finest camera values.

The complete package price for the entire trip is \$1395 from New York
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You can fly now and pay later, only 10% down.
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Send me your colorful "Camera Holiday in Japan" brochure.

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Make reservations for _____ my check for \$ _____ payable to Northwest

Orient Airlines is included (\$100 deposit per person required).

Photoscan Transmission System: A New Rival to the Russians'

When the Russians photographed the far side of the moon from a Lunik, they used a TV-type scanning system to transmit the picture to earth. While the results were far better than with conventional TV, they would have been better still if the Russians had used the system called Photoscan that has recently been developed by CBS Laboratories.

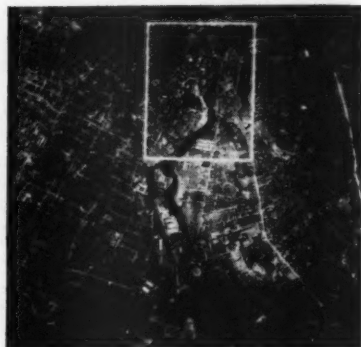
Photoscan is, if you like, just a variant of TV transmission—but consider these astonishing facts. Whereas the image on your TV screen is composed by a flying spot that travels along 500 horizontal lines, the Photoscan image (which may be only the size of a $2\frac{1}{4} \times 2\frac{1}{4}$ negative) has over 10,000 lines. The TV image is made up of 250,000 different elements; the Photoscan image, of over 120 million.

This means that the Photoscan system can more than equal the resolution of the finest-grain film now available, and since it also has various built-in electronic devices for enhancing contrast and for maintaining average film density over each frame, it can provide a transmitted image that is superior in quality to any photographic reproduction of the original negative (see Figs. 1 and 2, at right).

Photoscan's amazingly high speed and high resolution are due to a device invented in the CBS laboratories and called the Light Scan Tube (see Fig. 3 page 60). Basically, this is like the cathode tube in your TV set: an electron beam, moving rapidly to and fro, bombards a thin layer of phosphor, which glows momentarily with light wherever it is struck. In the Light Scan Tube, however, the phosphor is coated over the surface of a rapidly rotating cylinder, and the light spot is "bounced off" at an angle. This bouncing eliminates the halation which is caused in a cathode ray tube by the spot's passing through glass. The rotation of the cylinder serves to minimize the effect of the phosphor grain; what's more, it prevents the heat generated by the electron beam from being concentrated at one point, thus permitting a much more intense beam—10 to 20X brighter—than is possible in a cathode ray tube.

Let's see now how the whole Photoscan system works. At the transmitting end, a camera exposes the film, which is then transported through a rapid film processor. The processed negative then passes in front of the beam from the Light Scan Tube. (There is a moving

lens which directs the beam along the required path across the negative—and there is a choice between two paths. For maximum speed, the beam can be directed straight up and down across the



1. FULL ORIGINAL: Contact print of a $2\frac{1}{4}$ negative before transmission by Photoscan (an aerial view of Boston, Mass.). White outline shows area reproduced in Fig. 2, below.



2. ENLARGEMENT OF SCANNED POSITIVE: Outlined area in Fig. 1 after transmission by Photoscan. The negative was scanned in segments for maximum resolution, reversed to a positive during transmission.

width of the negative; for maximum resolution, it can be directed in a complex path—traveling a short distance to and fro as it moves up and down—so that the negative is scanned in segments. These segments can be seen in Fig. 2, page 58.) The variations in density (Continued on page 60)



NEW...automatic twin-lens reflex with built-in electric-eye exposure indicator

other features include:

- single-stroke crank automatically advances film, sets shutter—prevents double exposures
- 12 exposures per roll of 120 film—2¼ x 2¼ inches
- matched coated optics—Yashinon f3.5 taking lens and f3.2 viewing lens
- M-X synchro-flash shutter, speeds: 1 sec. to 1/500th plus 'B' and self-timer
- bright fresnel-type focusing screen—ruled in squares to aid composition
- auto-reset exposure counter
- knurled thumb-wheels for setting shutter speed and lens aperture
- settings appear in window visible with camera in normal viewing position
- large diameter focusing magnifier
- direct-view, open-frame sportsfinder
- bayonet lens-front mounts for filters, hood and other accessories
- depth-of-field scale

only \$79⁹⁵
case \$10

YASHICA-MAT LM

A few short years ago, Yashica astounded the photographic world with the announcement of four twin-lens reflex cameras, headed by an automatic model priced at only \$75.50. No sooner did deliveries begin, when it became evident that the technical and optical quality of these cameras were unsurpassed at any price.

Camera enthusiasts responded by the tens of thousands. Yashica quickly rose to number one position in sales. And today, there are more Yashica twin-lens reflex cameras in use than those of any other make—among novices, advanced amateurs, and professionals, as well.

Reflex camera history is again in the making. The new Yashica-Mat LM with its built-in light meter, its automatic features, its technical design, optical quality, rugged construction, styling, and astonishing price-tag—will prove an even greater value sensation than its predecessors.

Wherever Yashica has directed its skills, it has broken the price barrier to quality, bringing finer cameras within reach of more people than ever before.

Your dealer is now featuring both—the Yashica-Mat at \$75.50 and the new Yashica-Mat LM at \$79.95. See and try them for yourself.

Also See These Remarkable New Small-Size Twin-Lens Reflex Cameras



YASHICA 44LM with electric-eye exposure indicator. Uses 127 film—12 exposures—super-size color slides or jumbo prints and enlargements in color and black-and-white. Matched Yashinon f3.5 lenses—M-X synchro-flash shutter, speeds: 1 sec. to 1/500th and 'B'—self-timer—fresnel-type focusing screen—automatic film stop—magnifier—sportsfinder—bayonet mounts.

Only \$59.95 (case \$10)

YASHICA 44A sensational in performance and price. Matched f3.5 lenses—synchro-flash shutter to 1/300th—fresnel-type focusing screen—focusing magnifier—sportsfinder. Only \$29.95 (case \$6)

SPECIAL YASHICA 44A GIFT KIT includes: Yashica 44A camera, eveready case, flash unit and case, and convenient camera hand-grip.

Complete \$46.95



See these and other exciting Yashica values at your photo dealer today.
For further details write to:

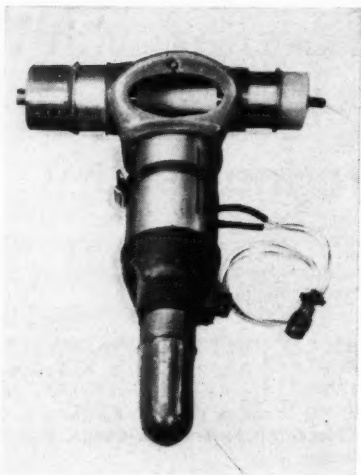
YASHICA INC., 234 FIFTH AVENUE, NEW YORK 1, NEW YORK

In Canada: Anglphoto Ltd., Montreal, P. Q.

Read about the Yashica "Camera Trip to Japan"—see ad page 58

PHOTOSCAN

(Continued from page 58)



3. LIGHT SCAN TUBE, heart of the Photoscan system. An electron beam is generated in the upright of T-shape and strikes a phosphor-coated drum (visible in window), which is rotated at 1600 rpm by an armature in left-hand branch of T. Phosphor glows under beam, sending light spot out of window through moving lens (not shown) to film.

which make up the negative image determine the amount of light passing through the negative. The scanning beam, thus modified, now passes into a Photomultiplier, which converts the varying-intensity light into video signals. These, together with synchronization signals, are then transmitted to the receiving station, which—if relay stations are used (e.g. high-altitude balloons)—may be hundreds or thousands of miles away.

At the receiving end, the synchronization and video signals are separated, the former being channeled to the film advance and scanning controls. The video signals are converted back into a scanning beam of varying intensity, which is directed onto unexposed film. The signals are, at the same time, reversed—i.e., high intensity becomes low intensity, and vice versa—so that the original negative image now appears on the film as a positive image. If desired, the image can be enlarged in the scanning process by adjusting the spot movement controls. The exposed film is passed through a rapid processor, and then—if speed is essential—can be routed to a viewer-magnifier. The whole process—from shooting to viewing—may take as little as ten seconds.

—WILLIAM JOHNSON

MODERN COLOR

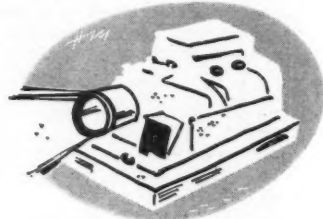
(Continued from page 57)

in a reflector 5½ in. from the slide, make an exposure of f/22 at 1/50 sec. on Super Anscochrome Tungsten Type. Using a No. 2 Photoflood in reflector, Ektachrome Type F and an 82A filter, try an exposure of 1/15 sec. at f/22. For f/16 try 1/30 sec.

All the foregoing exposure suggestions apply also when making black-and-white negatives from slides on film with an exposure index of 50.

When you go to your dealer you'll be confronted with two varieties of Model VI duplicator, the No. 44 and the No. 50. I've found that the No. 44 is best for twin-lens reflexes with 75mm lenses, the No. 50 for those with 80mm lenses.

That's all there is to it. Happy duplicating!—THE END



and zooming, too!

Zoom in for close-ups, away for wide angle effects, with Pan Cinor 30 f/2.8 Zoom Lens. Ranges from 10 to 30mm. Reflex viewing eliminates parallax. Has D-mount for 8mm cameras, \$149.50, \$337.50 for H-8T with Pan Cinor 30 (does not include "Preview-Finder").

Prices include Federal Excise Tax where applicable.



8mm BOLEX on 16mm BODY

Complete professional settings! 100 ft. film load—shoot four times longer without reloading!

The only 8mm movie camera of its kind in the world! The unique Bolex H-8T offers forward/backward winding as well as footage and frame counters for lap dissolves.

Through-the-lens focusing ends doubt about distance and depth-of-field. Six governor-controlled speeds (12 to 64 fps) make it easy to get slow motion or comic speed-up. Other settings provide single frame shots, time exposure, and continuous running. Automatic film threading for fast loading, 200 feet of finished film per reel!

Special "Preview-Finder" shows field of view for four different lenses—you see just how scenes will look on film. You've never seen a camera like it! Write Dept. B-MP5 for literature and name of nearest dealer. From \$232.50 with Yvar 13mm f/1.9 f.f. lens. Lenses shown are optional.

BOLEX

PAILLARD Incorporated, 100 Sixth Avenue, New York 13, N. Y.

TOO HOT TO HANDLE

Can the Retina Reflex S 35mm camera with a behind-the-lens shutter be used with extension tubes or bellows arrangement? John H. McEwan, Milwaukee, Wisc.

It would be quite unsatisfactory to fit a set of extension tubes or a bellows mechanism to the Retina Reflex S. The behind-the-lens leaf-type shutter would cut off the outer edges of the image with either close-up device. Also, since the aperture-setting mechanism is built into the body of this camera, it would be quite difficult to devise a way of setting the lens diaphragm.

In the November 1959 MODERN, page 94, you state that FR X-500 developer is not recommended for use with Kodak Panatomic-X 35mm film. However, I have been using X-500 with 120 size Panatomic-X with satisfactory results. Why should there be a difference? B. Linger, Rochester, New York.

Kodak Panatomic-X in the 120 size has considerably softer contrast characteristics than in the 35mm size. We don't recommend FR X-500 with 35mm Panatomic-X because considerable experience indicates that development tends to be entirely too rapid with too high a degree of contrast. Thus, the larger film can stand more vigorous development without getting out of hand. You might be pleasantly surprised if you switched to FR X-22 developer for your Panatomic-X. It would give you a quite different negative.

Is it true that the Bell & Howell 240 EE (16mm) movie camera works in reverse? That is, when the lens should close down, the automation feature causes it to open? Angus McClumpish, New York, N. Y.

Hogwash. If it were true, no electric eye would work. As the amount of light recorded increases, more current flows from the battery to the electric motor of the 240 EE, which turns the diaphragm toward the smaller apertures. The reverse happens when light decreases.

In testing 35mm single-lens reflex cameras, a leading testing laboratory reported that the Praktina FX single-lens reflex camera broke down before tests

were complete and could not be placed on the recommended list. Would you care to comment? Harry Ellis, Bakersville, North Carolina.

Although we generally have much respect for the various testing laboratories and their reports in other fields, we are often inclined to disagree with their findings in the photographic. In our own tests of the Praktina FX, we did not experience any mechanical breakdown. We would suggest that you read our writeup on the camera, which appeared in MODERN, March 1957, page 52.

TOO HOT TO HANDLE

In this new monthly feature MODERN meets a challenge that photo magazines have always evaded—reader's questions that name names and probe the real value of products. We'll print as many as we can and we'll answer every one you send.

Would you compare the following 400mm lenses—the f/7.5 Tamron, the f/7.5 Astronar, and the f/5.5 Tele Astronar. Also, how good are the Tele Xenar (Schneider) and the Tele Megor (Meyer) lenses in 150mm, 180mm, and 250mm? Robert G. Weber, Metamora, Ill.

We have not tested the f/7.5 Tamron and cannot, in all fairness, comment upon it. In our tests, the extremely light f/7.5 Astronar which has no diaphragm and the f/5.5 Tele Astronar with a diaphragm proved to be about equal in quality. We have found that the Tele Xenar lenses tested are slightly sharper than the Tele Megors at wide apertures.

Why doesn't Kodak offer Kodachrome in 120 film size? Are they considering it? There are many of us who greatly appreciate its poster-like color balance, and its blacks, as well as its needle-sharp image qualities—and would, if given the choice, choose it before Ektachrome or Anscochrome. Every other color emulsion is now offered in 35mm,

127, and 120—why this gross prejudice against Kodachrome? Alexander Toth, Pasadena, Calif.

The primary reason for Eastman not supplying Kodachrome film in the larger roll-film sizes is the lack of processing facilities. Kodachrome film requires intricate, expensive, continuous processing equipment, which can be justified only where large quantities of film are involved. It has been found practicable to set up processing equipment for 35mm, 16mm, and 8mm Kodachrome film, but no one seems to be interested in spending the huge sum of money required for setting up a 120 processing plant.

When sighting through the reflex finders of a Contaflex Super and a Nikon F, side by side, I was surprised that the Contaflex Super with an f/2.8 lens actually revealed a view of approximately twice the brilliance of the Nikon with an f/2 lens. Why?—Frank J. Burris, Marietta, Ga.

The brightness of the Contaflex stems from the fact that the major part of the viewing area is not a fine ground glass but a brilliant non-focusing finder. If you look at the central focusing ground-glass collar in the Contaflex and compare it to the whole ground-glass focusing screen of the Nikon, you'll find that the focusing area of the Nikon is the brighter.

Some of your advertisers list cameras "in factory-packed condition" at less than the regular list price. Do you think I would stand a chance of getting a camera that's as good as the day it left the factory if I responded to one of these ads? H. A. Burkhart, Petersburg, Indiana.

The key to the answer is factory-packed "condition"—which may be quite different from factory-packed. We suggest you make certain of a 10-day guarantee which allows you to return the camera for a full refund if not satisfied.

I have just bought a 35mm Heiland Pentax camera. I now want a 300mm lens for it. Which is the sharper—the 300mm f/5.6 Kilit or the 300mm f/5.6 Novoflex? Can I buy these lenses directly from their importers?—John Pakaski, 4469 Third Street, Ecorse, Michigan.

The two 300mm lenses you mention are, in our opinion, about equal in optical quality although, as in any lens design, individual lenses may vary in performance from specimen to specimen. But you cannot buy either directly from the importers. They must be ordered through your photo dealer.

How do you rate the Yashica YF in comparison to some of the more expensive 35mm's? Also, I have been offered a Nicca 35 Type 3 at \$45. Do you consider this a good buy?—George L. Buguey, Carmel, California.

In our "Modern Test" of the Yashica YF, we indicated that the quality was ex-

(Continued on page 104)



MONO- CULAR

WHEN? WHY?
WHAT? HOW?

EVERY PHOTOGRAPHER who ever owns a tele lens eventually looks at a pair of trim, light, powerful binoculars and wonders why he himself is saddled with a long and relatively heavy piece of stovepipe filled with glass.

After all, if a camera lens functions optically as an eye does, why can't a camera with a regular lens look through a pair of binoculars? For years the arguments against binoculars were as gospel. Binoculars, it was said, were corrected only for visual observation, not for photographic purposes. In addition, prior to the light alloy metals introduced during and following World War II, binoculars were considerable in weight and you were always dragging two monoculars around with you when all you really needed was one monocular (half a binocular). Also, attempts to align binoculars properly and center the exit pupils directly over the central part of the lens (there was no way to attach them directly) was a job for a sturdy, unwieldy support.

Recently, much progress has been made. Following the lead of Carl Zeiss, who two years ago introduced a special monocular for the Contaflex 35mm single-lens reflex camera, there are now three other manufacturers producing monoculars that screw directly into the front of 35mm camera lenses with no extra support. They are light and compact and powerful—and can turn a standard 50mm lens into anything from a 300 to 400mm lens. Most important, the monocular represents the only method of getting long tele shots with a leaf-shutter 35mm single-lens reflex camera or a 35mm single-lens reflex without an interchangeable lens mount.

But the old prejudice against using the folded lens-and-prism system of the binocular or monocular persists. MODERN, after thoroughly testing all brands on the market today on a large variety of different cameras, can now state that monoculars are good and extremely handy. Photographer Carroll Seghers

WHAT A MONOCULAR CAN DO: Carroll Seghers brought owls close with Contaflex, Zeiss 8X monocular. Inset is 50mm view. Plus-X Pan, f/16, 1/250 sec.



MONOCULARS (cont.)

II, on assignment from MODERN's editors, turned out the picture of the owls, page 63, on his first try with the monocular.

First, let's see how long a lens can be made from a monocular. Monoculars (just like binoculars) are marked thus: 6X30, 7X35, 8X30, etc. The 6X, 7X, and 8X refer to the magnifying power. To find the effective focal length of a camera lens and monocular combination, multiply this number times the focal length of the lens. For instance, a 50mm lens used with an 8X monocular would produce the equivalent of a 400mm lens.

Maximum lens aperture depends primarily on the monocular. To find the maximum aperture divide the second number on the monocular—30, 35, etc., (objective lens diameter) into the combined effective focal length of the camera lens-monocular combination. Thus, a 400mm effective focal length when used with an 8X30 monocular produces an aperture of about

$f/14$ ($400\text{mm} \div 30 = 13.3$). The maximum aperture of your camera's lens doesn't matter. If your camera has an $f/2$ lens and you attach a monocular to it, the combination produces $f/14$. Same thing if the camera has an $f/2.8$ or $f/3.5$ lens. However, you can close to a smaller aperture than $f/14$ by stopping your camera lens beyond $f/14$. Beyond $f/14$ the effective aperture of your combination becomes whatever opening you set with your camera. While this works quite well with the Zeiss monocular, the tolerances of attaching the unit are so critical that it may not work properly with other monoculars. A simple and most effective way to reduce aperture is to place a diaphragm at the end of the monocular itself. The Accura has just such an arrangement, which is sold as an accessory.

At this point, figuring that the maximum aperture you can achieve with 400mm is about $f/14$, you may throw up your hands and go back to the stovepipe. Don't. Remember that the depth of field provided by

MONOCULARS: PRICE, POWER, PERFORMANCE MAKE THE DIFFERENCE



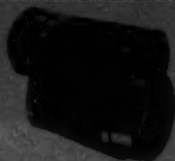
Accura, 7X50. \$49.95. 6½ in. long, 16 oz.; tripod socket; when used with 50mm lens, 350mm $f/7$ (see text); focusing ring calibrated in feet to 30 ft.; lens shade and aperture discs ($f/10$, $f/14$, $f/20$), \$9.95. Tests indicate good center sharpness with little fall-off at the corners. Importer: Photo. Import. & Distrib. Corp., 67 Forest Rd., Valley Stream, N.Y.



Astronar 6X, 6X30. \$49.95. 4 in. long, 8 oz.; when used with 50mm lens, 300mm $f/11$ (see text); focusing to about 12 ft. Good center sharpness, moderate fall-off. Importer: Encino Engineering, 4871 Alonzo Ave., Encino, California.



Spiratone, 6X30. \$9.95. 7X35, \$12.95; 8X30, \$13.95. 4½-5¾ in. long, 7-9 oz.; tripod socket; with 50mm lens, 300mm $f/10$, 350mm $f/10$, 400mm $f/14$ (see text); focusing to 20 ft. Fair center sharpness, moderate fall-off. Importer: Photo. Import. & Distrib. Corp. (address above).



Zeiss 8X30B, 8X30. \$89. 3½ in. long, 7½ oz.; with 50mm lens, 400mm $f/14$ (see text); focusing to 7 ft. (with close-up lenses, to 4¾ in.); screws directly into Contaflex, other cameras with special adapters. Very good center sharpness with little fall-off, best color corrections. Importer: Carl Zeiss Inc., 485 Fifth Ave., New York, N.Y.

such a long focal length at most shooting distances would be almost impossibly shallow with a larger aperture. And with today's faster and better color and black-and-white films, what's wrong with f/14 for most outdoor use?

Having disposed of exposure, let's turn to the other necessary control—focus. The monocular makers suggest you use them with the camera lens set at infinity. Then, by turning the monocular itself (Spiratone, Zeiss), an eyepiece mount of the monocular (Astronar), or a special camera-type focusing mount (Accura) you can focus the combination. When you reach the shortest focusing point, you can get slightly closer by using the focusing mount of your camera. For even closer results, you can fit supplementary lenses on the end of the monocular. At this writing, however, only Zeiss has a specially made set of such lenses.

After you've found the proper exposure and taken care to focus properly (more about that later), how acceptable will your pictures be? In MODERN's test, we found results with the over-\$40 monoculars comparable in quality to pictures made with standard tele or long focal-length lenses. With all of them, the central $\frac{2}{3}$ portion of the picture area was more than acceptably sharp. In the outer $\frac{1}{3}$ area, sharpness fell off—in some more than others. Not surprisingly, monoculars get better the more you spend for them. On the other hand, to get even an adequate 400mm lens for \$15 (the cheapest unit available) is pretty fantastic.

Much of the loss in sharpness at the edges is due to field curvature. The monocular may focus the center of the image at one point while focusing the edge at another. Since a certain amount of field curvature is also present in almost all camera lenses, the combination of field curvatures of both monocular and camera lens can be considerable. In our opinion, however, the curvature of field of the four monoculars tested did not produce an excessive amount of loss of sharpness.

Sharpness is not the only criterion of lens performance. Distortion may not only affect sharpness but also add another image-degrading factor. For instance, we found that all monoculars we tested have pincushion distortion (straight lines appear to curve inwards) to a moderate degree. In our tests, we did not feel that the amount of pincushion in any of the monoculars was objectionable—unless you're planning to do architectural studies.

All the monoculars were found acceptable as far as color correction was concerned, with Zeiss having the best corrections.

Now the fun. Will the monocular fit your 35mm camera? Don't even try it unless you own a reflex. Focusing without a through-the-lens system is well-nigh impossible. But the monoculars will not fit all single-lens reflexes. The sole criterion is a purely mechanical one. In our tests we discovered that the eyepiece lens of the monocular must be extremely close to the front lens element of your camera. While this is a simple matter with all the leaf-shutter single-lens reflexes, many lenses on the focal-plane-shuttered reflexes have large front ele- (Continued on page 136)



50mm normal focal-length lens.



300mm . . . 50mm plus a 6X monocular.



350mm . . . 50mm plus a 7X monocular.



400mm . . . 50mm plus an 8X monocular.

THE VERDICT IS YOURS



ARE EDITORS on photographic magazines full of hot air? Is their picture taking limited to shooting lens tests of brick walls and clicking away with empty cameras to estimate the accuracy of shutters?

Frankly, we don't claim to know about all editors. But we do feel that you should be able to judge MODERN's for yourselves. All of the photographs in this section were taken by members of our staff. As you will see from the captions, most of us take pictures on evenings and weekends, or on vacation. The equipment we use varies from 35mm to 4 x 5; our subjects range from children at home to designs found in paint and brick on picture taking expeditions.

EDWARD MEYERS: The success of this photograph depended not only on technique but on a strong throwing arm. When Associate Editor Meyers first noticed the pigeons, they were sitting quietly on a roof about 50 feet away. "I prefocused my Rolleiflex and transferred it to my left hand. Then I tossed a rock at the roof. At the instant the rock hit I released the shutter." The 2¼ x 2¼ negative was drastically cropped in printing and the section shown is smaller than 35mm size. Late afternoon light required an exposure of f/4 and 1/60 on Verichrome Pan.





△ **DAVID MILLER:** Since his wife works as program director at New York City's Lighthouse, an organization for the blind, Associate Editor Miller had no difficulty getting permission to photograph these children at the annual Christmas party. "Most of my pictures are of places and things, and documentary work is a little out of my line," says Miller, "but I decided to accompany my wife and try my hand at shooting people." In all, Miller ran through two rolls of 36-exposure Ilford HPS in a Leica M3 with an f/2 Summicron lens. Exposure: f/2.8, 1/50.

▷ **EDWARD MEYERS:** When he was a student at Rochester Institute of Technology, Meyers spent much of his spare time roaming the streets in search of pictures. On one such afternoon, he noticed this Alsatian Shepherd oddly occupied in biting rocks. "To emphasize his peculiar pose, I shot down on him with a Leica IIIa and a 50mm f/3.5 Elmar lens. This is almost the full negative." Exposure was 1/100 second at f/6.3.



HERBERT KEPPLER: In Bar-▷
berino val d'Elsa, a small mountain
town in Italy located between
Florence and Rome, all of the women
do embroidery while sitting outside
their homes. They all wear black and
they all wear glasses. And they all
like to have their pictures taken.
"We had," reports Keppler, "a hard
time keeping them from lining up in
the village square for a giant snap-
shot. I found that these villagers
tended to mug when I used the
50mm lens up close—so I did most
of my shooting with a 135 from a
distance." Keppler took a reading
off his palm with a Weston Master
III meter, rating Plus-X film at E.I.
250. Miranda, 135mm f/2.8 Tele-
Iscaron, f/11 and 1/250 sec.





ERNEST SCARFONE: Use a fast film, a fast lens, and keep shooting till they stop mugging. This is Art Director Scarfone's formula for taking pictures at children's parties. The two boys *above* were photographed at a Halloween party for about 15 two- to five-year-olds from the neighborhood; Scarfone's daughter Linda, *right*, on her fourth birthday. Scarfone feels that using a lighting setup with a lot of children can be dangerous, prefers to work only by available light. "Since I have taken a lot of pictures at home, I know the lighting variations pretty well throughout the house. I didn't use a meter on either of these sets of pictures, but varied exposure between 1/50 and f/4 and 1/50 and f/2.8. Of course, when working with black-and-white the film's latitude makes up for a certain amount of miscalculation." Scarfone was shooting with Super Hypan rated at E.I. 650, Praktina camera, 50mm f/1.9 Auto-Quinon lens.

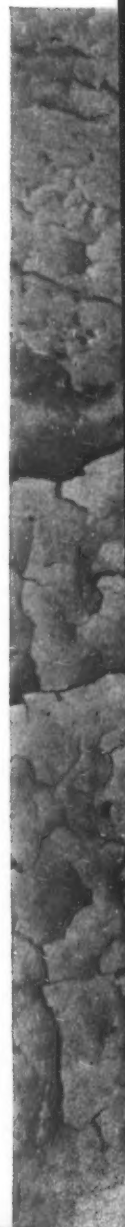
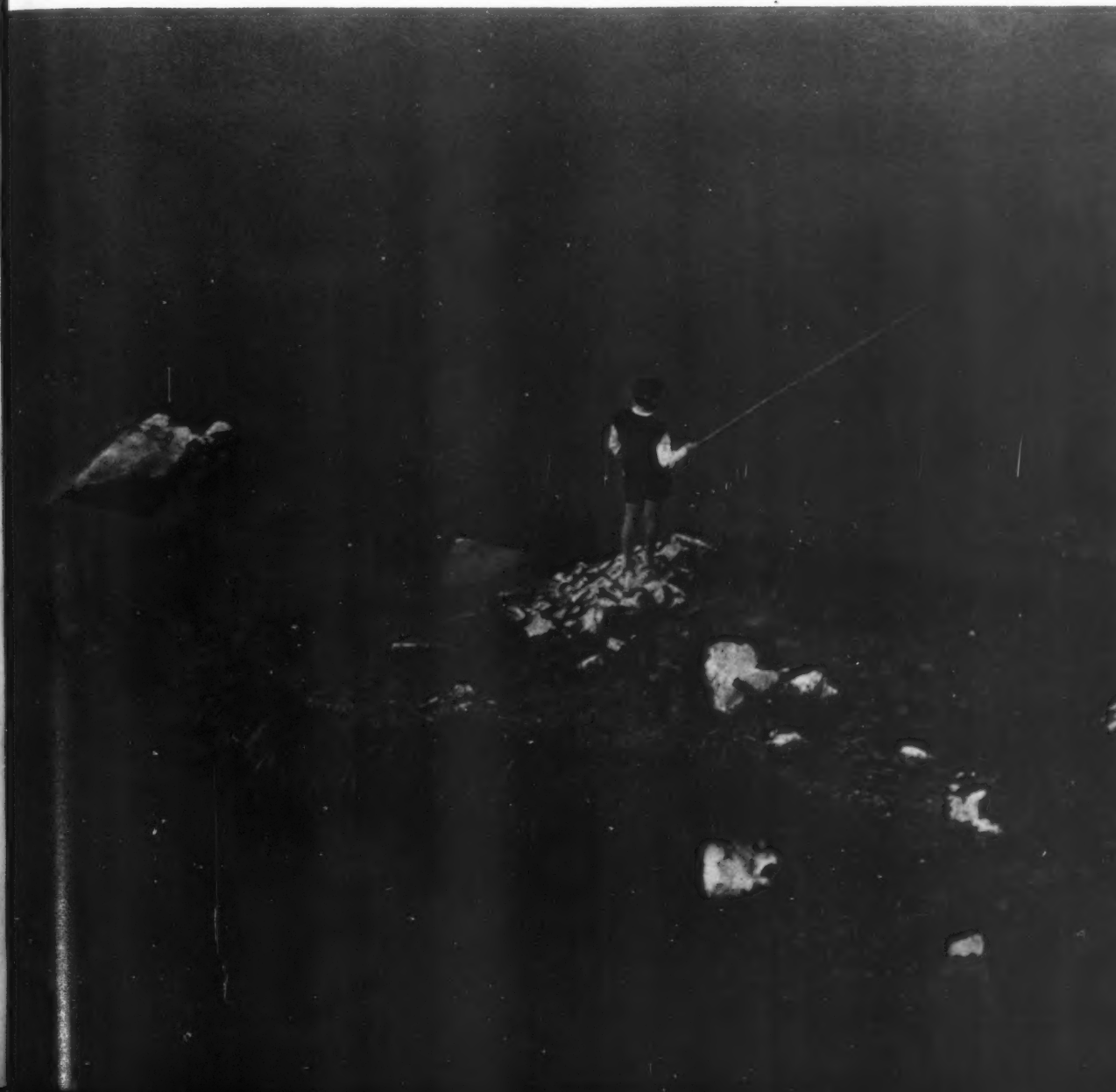


PATRICIA CAULFIELD: Restful fishing scene, *below*, was result of return to a photogenic area first glimpsed on a bus tour of Florence, Italy, by Picture Editor Pat Caulfield. Intrigued by a meadow which appears below the dikes on the banks of the Arno River, Pat came back, Miranda in hand, the next day. "While crossing a bridge on my way to the meadow, I noticed this boy fishing in the shade. I liked his tranquility, and the combination of colors in the scene. A general reading with a Weston Master II indicated an exposure of f/5.6, 1/30 sec. on ▽ Kodachrome." 58mm f/2 Biotar lens.



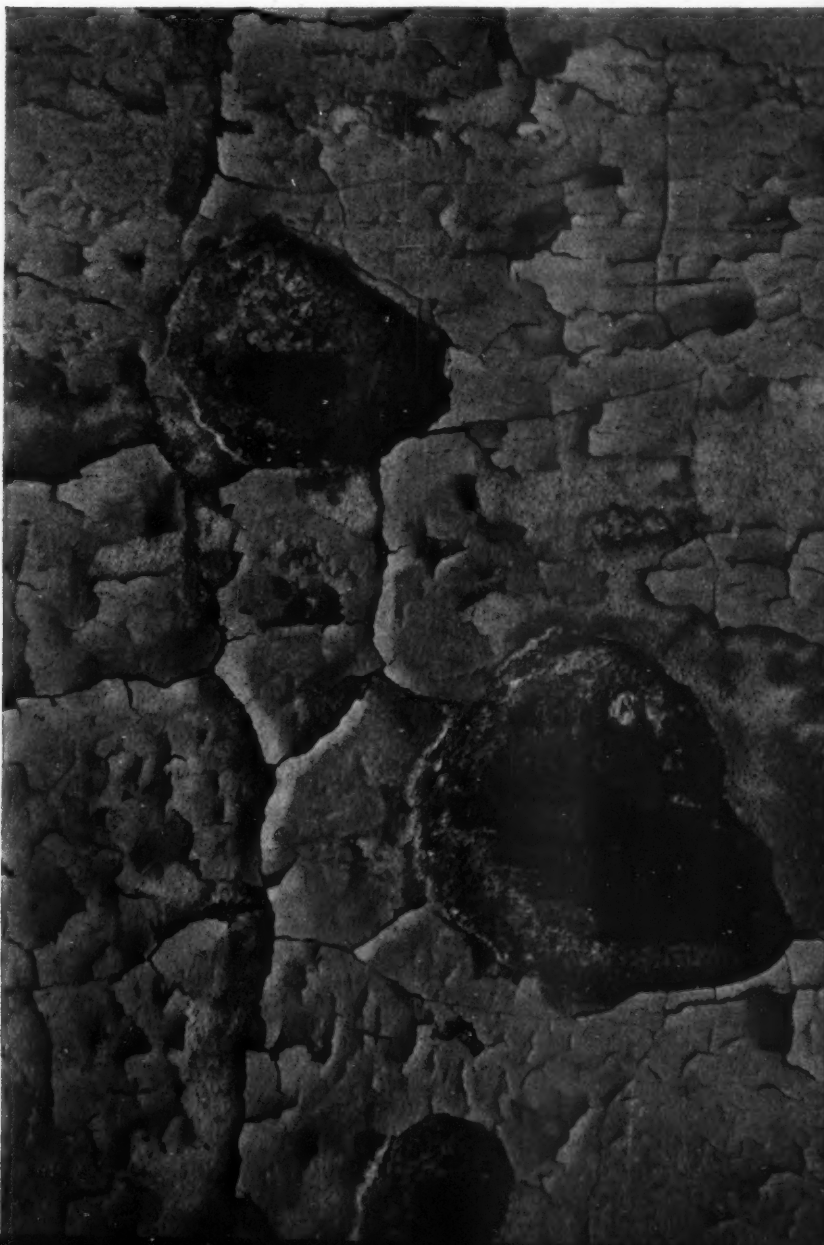
◁ **PATRICIA**
Miranda. I
ground to h
of a nearby
Out-of-focus
net curtain.
from hand:

JACQUELYN
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◁ **PATRICIA CAULFIELD:** "Testing a 135mm Accurar lens on a Miranda, I became fascinated with changing the focus from foreground to background at a wide aperture." Pat shot through leaves of a nearby bush, focused on twigs in water about 10 or 12 ft. away. Out-of-focus leaves give panning effect, almost like shooting through net curtain. Exposure reading, using Weston Master II, was taken from hand: f/2.8, 1/250 sec. on Kodachrome.

JACQUELYN BALISH: While hunting for pictures around the Battery in lower Manhattan, Editor Jacquelyn Balish became fascinated with the texture and pattern of paint peeling from a wall. "Technically, there were no problems. It was a bright, overcast day: ideal for shooting color. I worked slowly to get the composition I wanted, taking only two shots in 45 minutes." Nikon S, 50mm f/1.4
▽ Nikkor, f/4 and 1/60 on Kodachrome.







△ **HERBERT KEPPLER:** Caribbean natives, as a rule, are averse to having their picture taken. Consequently, most of Burt Keppler's Caribbean photographs are grab shots, taken with a 135mm f/4 Zeiss Triotar on an Exakta VX. In this Tobago market he waited with his camera behind his back until the seller cut a slice of melon and offered it to a customer. "I used Anscochrome for all of my Caribbean photographs because of its latitude, here exposed at f/16 and 1/250 second."

◁ **HERBERT KEPPLER:** Not every gondola in Venice has flowers in a vase near the prow, but Keppler deliberately chose to ride in one which did. While the gondola rocked, the scene changed, and Keppler shot about 16 pictures on Kodachrome. Miranda, 135mm f/2.8 Tele-Iscaron, 1/30 and f/2.8.

▷ **JOHN WOLBARST:** Calculating exposure was the problem in shooting this monochromatic sea-scape. "I'm a little hazy about the details," says Wolbarst, "but I do recall that the exposure was based on a meter reading made by pointing the cell directly at the cloud which had drifted across the sun." Canon, f/1.4 Nikkor, Kodachrome, Daylight type.



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EDWARD MEYERS: Several years ago Ed Meyers did a six-month stint with the army at Fort Chaffee, Arkansas. "Since I had previous training in photography, the army decided that I was ideally suited to be a Field Artillery lineman—in other words, a pole climber. I spent eight weeks in theoretical and practical climbing, and in order to make it bearable, I took a lot of pictures. That way, I didn't have to climb quite so many poles." Meyers documented his army experiences, pole climbing and other, with a Leica IIIc. Here, he used a 35mm f/2.8 Serenar lens and shot up to exaggerate the posture of this hard-working co-trainee lineman. Plus-X film, f/5.6 and 1/500 second.





◁ **JOHN WOLBARST:** Equipment, for Consulting Editor Wolbarst, does not dictate approach. This photograph of a street musician looks like a typical miniature camera shot—yet was actually taken with a 4 x 5. “I was taking a stroll down Broadway and was carrying a Graflex loaded with a Tri-X film pack. As I went by this musician I noticed that his music rack cut off part of his face and it was obvious that from a low angle it would conceal his head entirely.” Wolbarst walked on, then stepped out to the curb. He prefocused the camera for the distance from curb to building, cocked the shutter and pulled out the dark slide. Then, he turned and walked past the musician again. “Just as I came opposite him, I turned the camera in his direction and snapped the shutter. This is a very small portion of the negative. I can’t remember the exposure, but it was a cloudy gray day, and I exposed accordingly.”

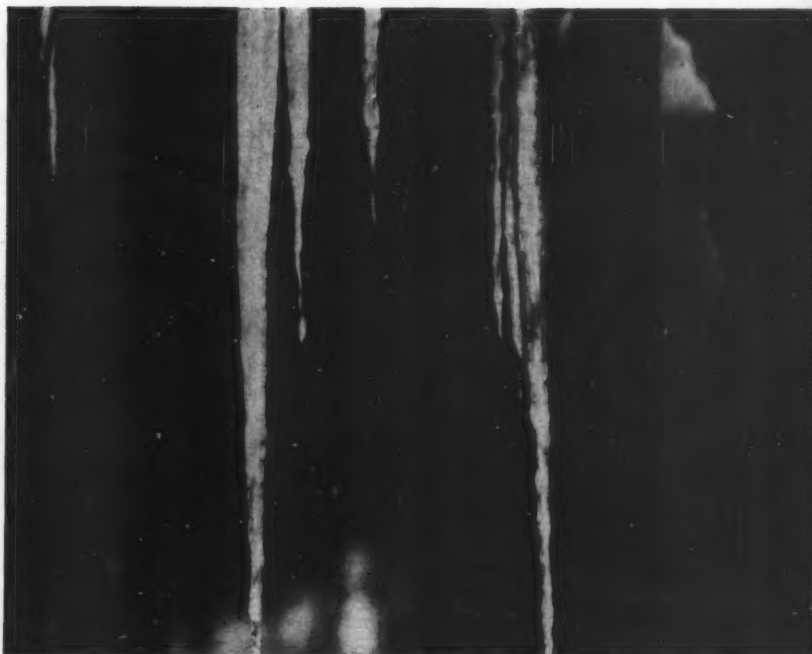
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△ **HERBERT KEPPLER:** During a vacation in Italy, Keppler and his wife stopped over at a small hotel in the town of San Leonardo. "I was awakened in the morning by a conversation taking place between two horse traders who were having coffee on an open terrace. When the horses, which were in a truck directly below the window, became rambunctious, the two men leaped up to quiet them." Miranda, 135mm f/2.8 Tele-Isaron, Plus-X, f/16 and 1/250 sec.

▷ **MYRON MATZKIN:** While on a ski trip in Vermont, Associate Editor Matzkin made a series of photographs of icicles which he found on the porch of a farmhouse. "I had arrived during the night and didn't notice the ice. When I saw it in the morning I went out immediately and shot a roll of Plus-X." Asahi Pentax, 58mm f/2 Biotar, f/2.8 and 1/500.



POWER BEHIND FLASH

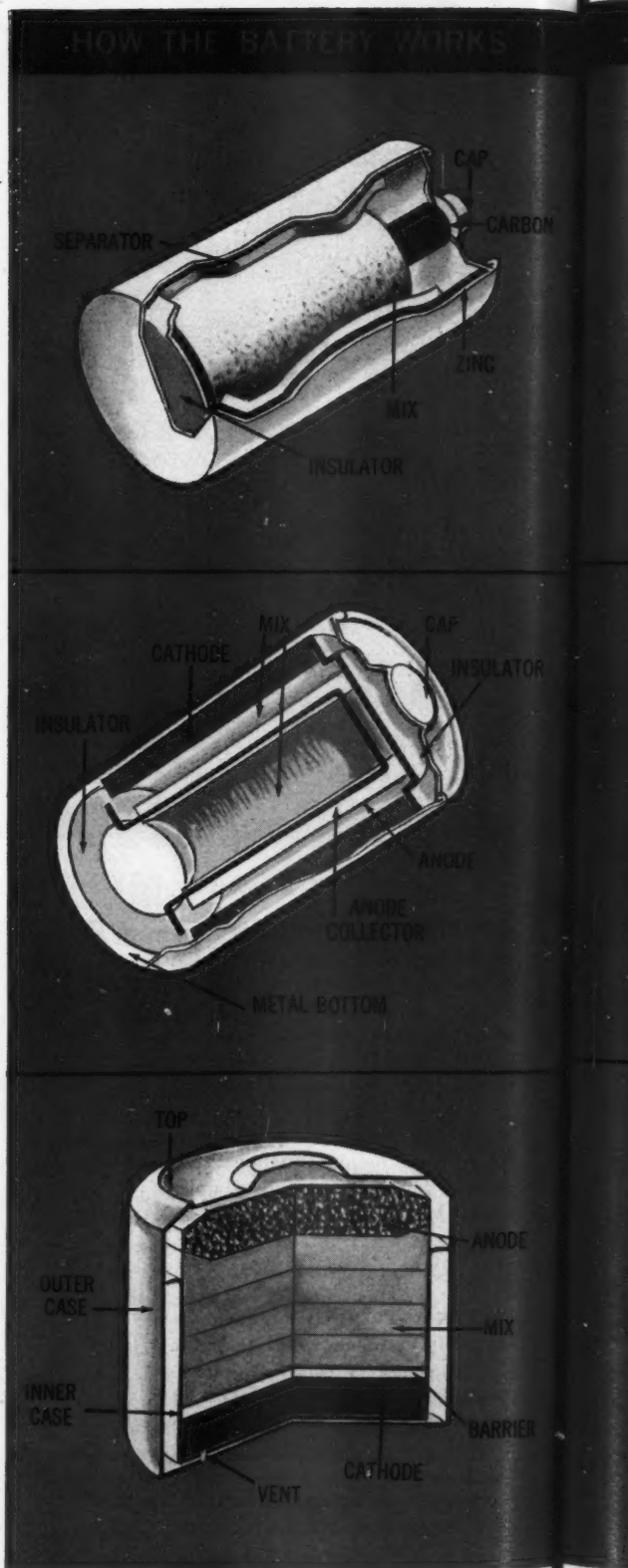
**CHARLES HELLMAN GIVES YOU THE FACTS
BEHIND THE CLAIMS ABOUT BATTERY LIFE,
RECHARGING AND THE NICKEL-CAD FAD.**

ALMOST EVERYONE WITH A SPARK of curiosity, at some time or other takes a battery apart to see what makes it work. More often than not, the innards exposed thereby yield no answer. Consequently, most of us go blithely through life letting technicians worry about differences between nickel-cadmium, wet-cell, D-cell and mercury batteries.

While the pages of MODERN are no place to give a full course, graduating everyone to master electrician, it is possible to explain some essentials about batteries that will help you in choosing an electronic flash unit, selecting the right battery and then keeping it at top strength for the longest period of time.

And you may find that you won't have to give up that older unit you have with the wet-cell storage battery or the flashlight-sized D-cells. There are ways of keeping them in top form and, as far as D-cells are concerned, there's a brand new super-efficient type of battery which may make the D-cell extinct in short order—and it will fit your old unit.

Let's go back and examine that typical flashlight battery. Looking inside (see fig., *opposite*), you'll find a central carbon rod (called the positive electrode), a filler material around it containing a moist paste of ammonium chloride (called the electrolyte), and finally the outside metal jacket made of zinc (negative electrode). The zinc, in the presence of the electrolyte, decomposes slowly. Zinc ions leave the metal jacket and react with the ammonium chloride. These ions are positively charged and leave behind them negative electrons from the zinc. If a wire is attached to the



GOOD POINTS

BAD POINTS

DRY D-CELL: A carbon rod forming positive electrode connects to cap. Zinc casing negative electrode is kept from rest of cell at bottom by insulator. Separator holds ammonium chloride paste, the electrolyte, in place. Current is produced when zinc decomposes. Zinc ions, released from metal jacket, react with ammonium chloride, leave behind negatively charged electrons. If wire connects carbon rod and zinc case, electrons will flow along it through a flash circuit.

Relatively inexpensive, (about 20 cents each) these cells are of standard size, available almost everywhere, can be changed quickly when the charge is gone. Life can be prolonged if they are stored in a refrigerator when not in use. A limited amount of battery rejuvenation is possible to allow extra flashes but only under specific conditions (see text). New jacketing makes modern D-cells less of a corrosion menace than old cardboard-and-paper-wrapped ones.

Flashes are limited to 100 or so. If cell hasn't been stored properly, you might not get that much. Toward end of charge, recycling time may become almost double. Cell is affected by temperature changes. If you do much shooting, cost of cells can mount up. Although casings have improved cell, leakage at end of life is still a problem. A corroding cell, if left in a flash unit, can become almost impossible to remove, may ruin your flash unit.

ALKALINE CELL: Carbon core forms positive electrode (anode). Zinc core is negative electrode (cathode). Mix instead of being in acid state, is potassium hydroxide. Cap is connected to anode collector wire while cathode connects to metal bottom. Insulators keep negative and positive terminals apart. Chemical reaction responsible for electrical energy from this alkaline cell is almost precisely the same as the one that occurs in the D-cell (above).

Size, shape and output of these relatively new cells can give old D-cell flash units a new lease on life. They have more energy and more electrical capacity. Flash unit's recycling time will remain constant until last bit of charge is used up. They are relatively unaffected by temperature changes. Storage life is greater than that of the D-cell. There is little danger of leakage with ensuing corrosive action.

Since alkaline batteries are relatively new, they are hard to come by. They are also more expensive than standard D-cells.

MERCURY CELL: Mercuric oxide mix (from which the cell gets its name) is positive electrode (anode). Zinc is the negative electrode (cathode). The mix, as in the alkaline cell, above, is potassium hydroxide and is kept from mixing with the cathode by a barrier layer. Entire cell has inner and outer jacket. Vent allows gases to escape. Electrical energy is created in approximately the same manner as it is in the D-cells and alkaline cells.

Extremely great electrical output for its size and weight. Voltage unaffected by temperature changes, and is quite constant even under heavy loads. Flash unit's recycling time will remain constant until last bit of charge is used up. Shelf life of the battery is extremely long. There is virtually no danger of leakage with ensuing corrosive action. Damage to the flash unit is therefore almost impossible.

Expense is the major factor. At present mercury batteries are all too expensive for any photographic use except in special applications. In addition, they cannot be recharged. Costs should become less in the future.

POWER BEHIND FLASH (cont.)

carbon rod from the zinc, these crowded electrons remaining will flow along it to the positive electrode, creating the current. This will continue until all the zinc has been used up. By diverting this flow, we can power an electronic flash unit.

While the battery is being discharged, hydrogen forms on the carbon electrode, reducing the flow of electrons. This process, called polarization, would quickly reduce the voltage of the cell. But manganese dioxide within the battery reacts with the hydrogen and dispels it. However, if the battery is subject to a heavy load, the depolarizing action can get slightly behind. If the battery is rested the manganese dioxide will continue to work and the hydrogen will be dispersed. The battery will then again operate normally. This is known as a battery's ability to "bounce back."

Leak-proof strait jacket

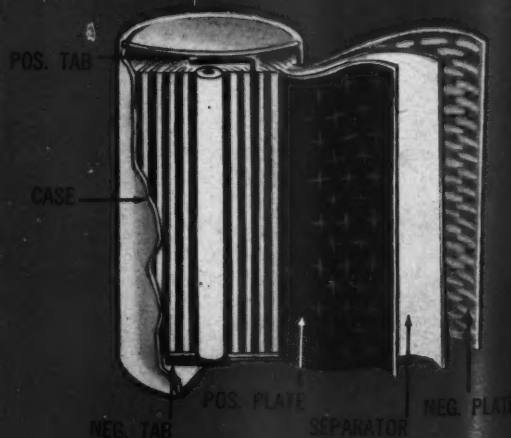
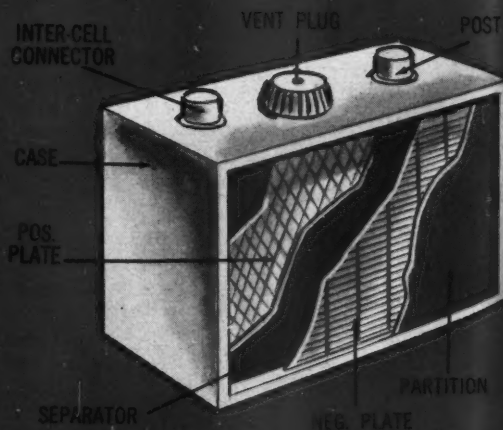
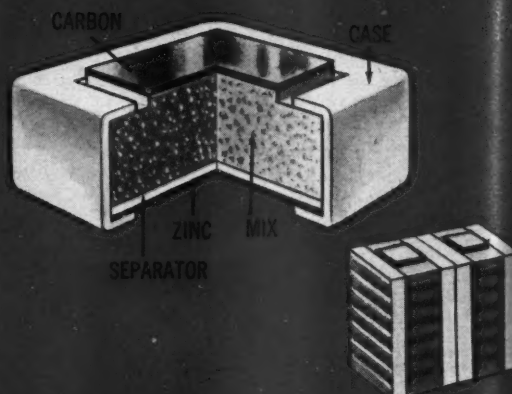
The kind of cell just described, which generates energy directly from the chemical ingredients and must be discarded after the chemicals are used up, is called a primary cell. Since the zinc casing is continuously reacting with the ammonium chloride, ultimately holes form in it, causing leakages. In the past such leakages, plus swelling of the battery case itself, caused considerable trouble. And how many flashguns and early flash units had to be thrown away because the owners couldn't dig the dead batteries out of the battery case—or when they did, found the unit ruined by corrosion?

Several modifications have now been made to alleviate this old battery problem. Some companies use an outer steel jacket; others, kraft paper with an interlining of polyethylene or an exterior carbon jacket. Although these protections do minimize leakage, it still occurs. But these extra precautions give you some idea why today's batteries cost 20 cents apiece instead of 5 cents or 10 cents as they once did.

The battery which we've just described is a single-cell unit the same size as the D-cell used in flashlights. Since these batteries are, in effect, the same size and shape (a flashlight cell will fit into an electronic flash unit and an electronic flash cell will fit into a flashlight), you probably have a sneaking suspicion that underneath the label and all the advertising copy the two kinds are really interchangeable. They're not. Photoflash cells must supply large currents beyond the capacity of flashlight cells while maintaining proper voltage. Consequently, they have slightly different inner materials which make them more suitable for photographic work but reduce the energy content for other light load uses. If you use a photoflash cell in a flashlight, it will last only half as long as a flashlight cell. On the other hand, an electronic flash unit using a flashlight battery would take much longer to recycle and reach proper charge than one using a photoflash cell.

The flashlight-sized D-cell used in many small portable units has a number of obvious disadvantages. It must be thrown away after a relatively short number of flashes (50 to 150 or so). Secondly, it becomes progressively weaker toward (Continued on page 110)

HOW THE BATTERY WORKS



GOOD POINTS

BAD POINTS

HIGH VOLTAGE BATTERY: A high voltage battery is actually nothing more than many D-cell type cells connected in series. Each produces 1.5 volts just as the standard D-cell. The components—carbon electrode, zinc electrode and electrolyte mix—are same as in D-cell. The shape, however, is changed to allow the cells to be stacked one atop the other, thus making contact, like D-cells in a flashlight, with no outside wiring.

High voltage in relatively small physical size simplifies flash circuit. Recycling is usually 4 seconds or less. Upwards of 500 shots can be made on a single battery before it's necessary to replace with a fresh one. Batteries are relatively easy to interchange. Life can be prolonged by storage in refrigerator when not in use. Special jacketing minimizes possibility of corrosion menace which might damage the electronic flash unit itself.

Quite expensive, the battery has a shelf life of no more than one year. It is not rechargeable. It is affected by temperature changes. Recycling time increases toward end of battery life.

LEAD STORAGE CELL: Lead compounds form both the positive and negative plates with separator between. Liquid electrolyte within is water with sulfuric acid. As battery discharges, the two electrodes are slowly converted to lead sulfate. Vent allows water level to be maintained and gases to escape when recharging. By connecting post to circuit and inter-cell connector to another post on another cell, cells can be added and voltage increased, just as in a wet-cell car storage battery.

The cost of a new battery or a replacement is comparatively low. It can be recharged to full strength a great many times using regular house current. Recycling time does not increase until very end of charge. The amount of charge remaining in the battery at any time can easily be measured by a separate or built-in hydrometer.

The battery is heavy and clumsy. A charge is limited to 50 or so flashes and it's difficult if not impossible to interchange spent batteries with a charged one while shooting. Battery life is limited to 1 to 3 years from the time the electrolyte has been poured into it. The sulfuric acid is extremely corrosive and dangerous. Spillage or leakage is a constant possibility which must be checked.

NICKEL-CADMIUM CELL: Nickelic oxide is positive electrode plate. Cadmium is negative electrode plate. These are wrapped with a separator between them and immersed in a potassium hydroxide electrolyte. Negative and positive plates are attached to top and bottom of cells by tabs. During discharge the nickelic hydroxide electrode becomes cadmium hydroxide, but there is little chemical change in the electrolyte.

Battery life is often 20 years or more. It can be recharged an almost limitless number of times. The battery can be stored fully charged or discharged. It will not lose its charge during storage. In some units spent batteries can be quickly interchanged for charged ones. Recycling time does not increase until very end of charge. There is little or no danger of leakage or corrosive action damaging the flash unit.

Relatively expensive. There is no simple way to measure the amount of charge remaining in a battery.

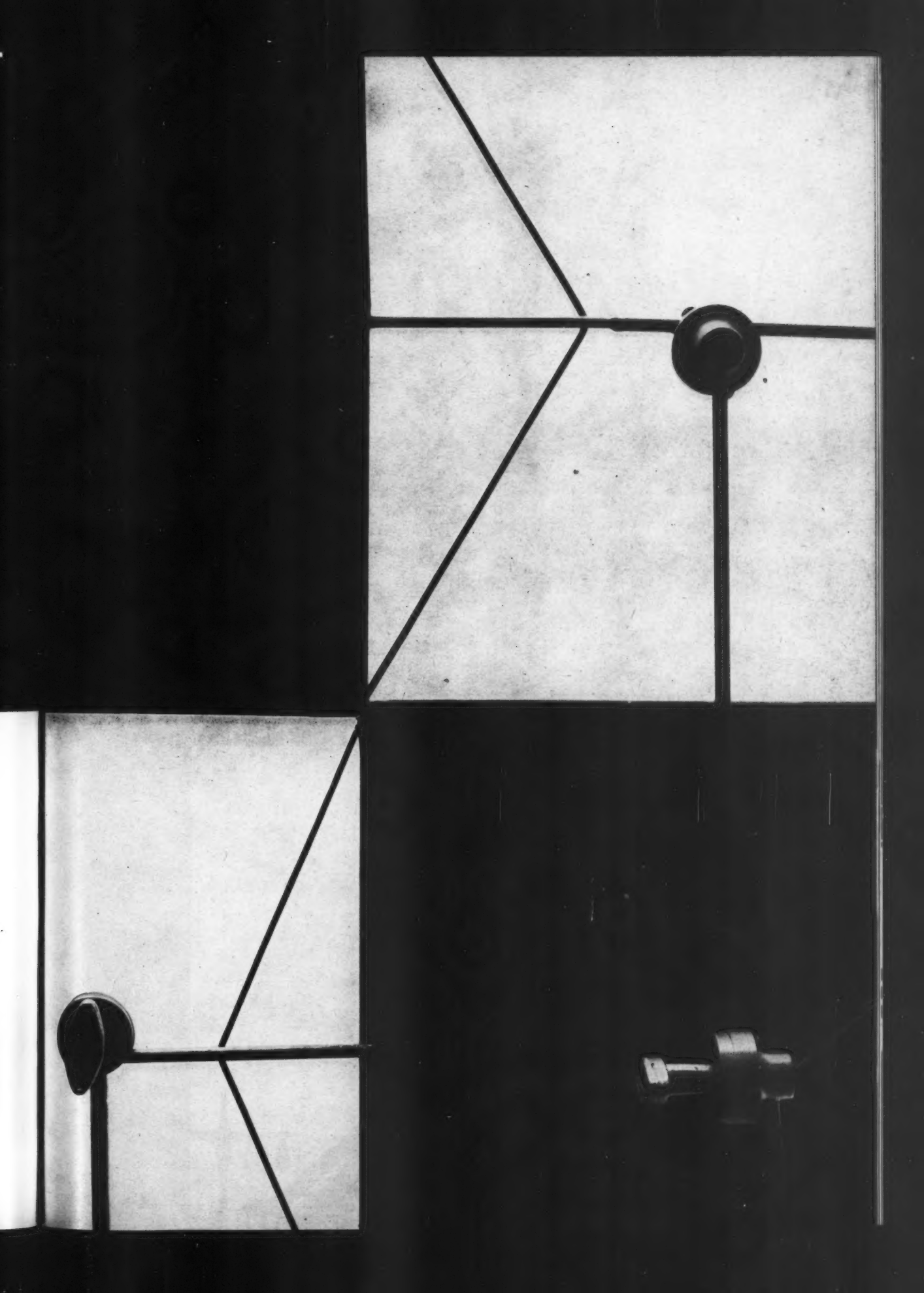
GOOD PICTURES NEEDN'T SHOUT

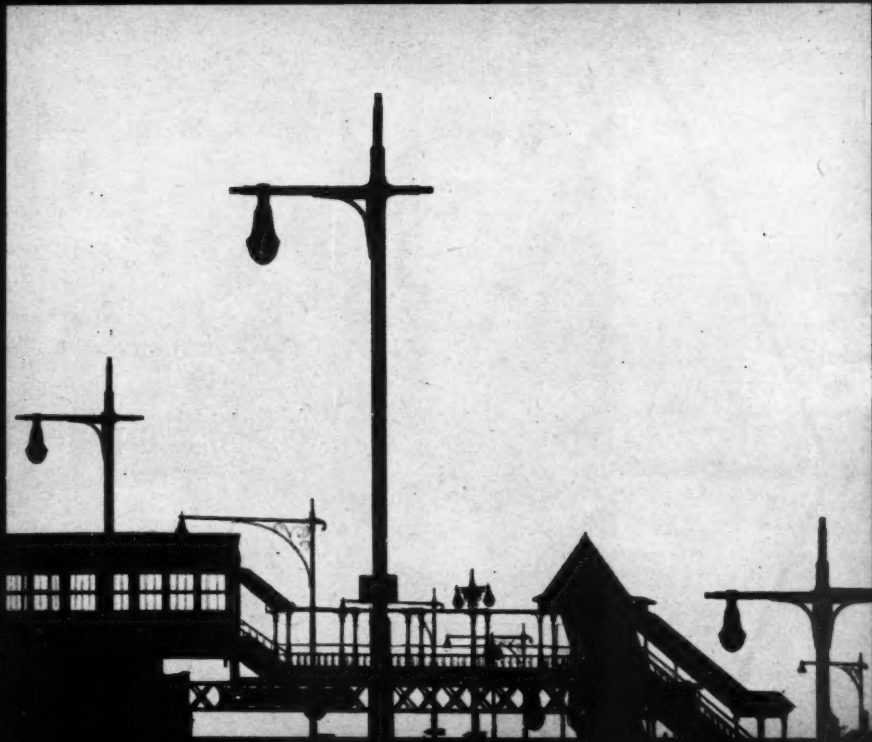
SHIRLEY BURDEN photographs simple, everyday subjects in a simple, straightforward manner. His equipment is basic, his working methods conservative. And yet his photographs have a compelling, attention-getting quality which we usually associate with unusual subject matter or unusual shooting and darkroom techniques.

Careful framing in shooting accounts for much of the impact of Burden's pictures. He works slowly when he photographs. He takes a meter reading. He examines the subject from a number of vantage points. He changes camera angle and camera-to-subject distance until the component elements in the scene appear in dynamic relationship on the ground glass. Then, he shoots. He rarely crops when enlarging.

This discipline was acquired early in Burden's career as a still photographer. Until just after World War II, he worked in cinematography, first as a producer and director; later, operating his own commercial motion picture company. In 1946, he became interested in taking still photographs and formed a studio partnership with Todd Walker, with whom he had previously worked on films. "Todd was doing advertising photography, and I decided to try my hand at architecture," says Burden.

Gobos in My Studio,
4 x 5 Graphic View camera,
8 1/2-in. Ektar lens,
Super-XX film.







Above: Submerged Branches,
4 x 5 Graphic View, 8½-in.
Ektar lens, Super-XX.

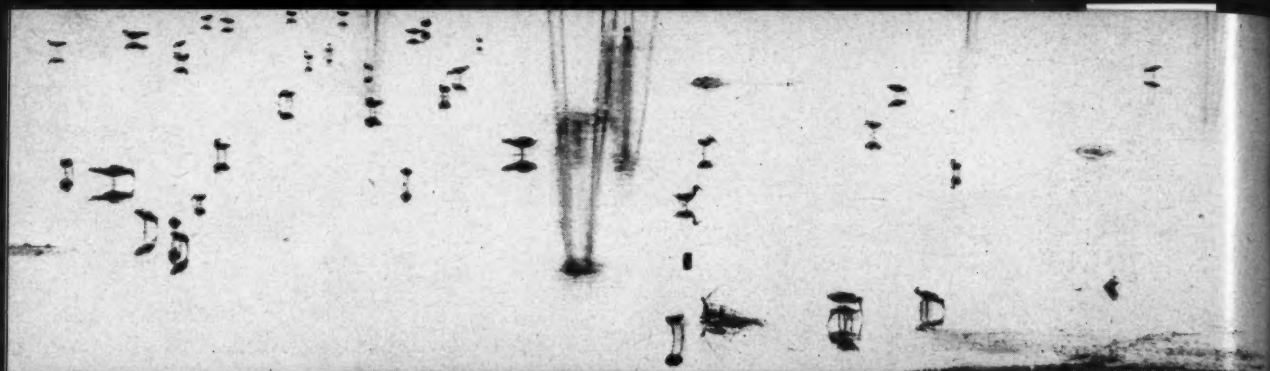
Opposite top: High Tension
Pole, 4 x 5 Graphic View,
10-in. Ektar, Super-XX.

Left: Staten Island Station,
Hasselblad, 135mm Ektar,
Gevaert Dandi Pan.

GOOD PICTURES (cont.) "From the start I had to use big cameras: mostly 4 x 5, some 8 x 10 for interiors. These machines aren't exactly ideal for rapid-fire shooting and it was easier in the long run—and less expensive—to be precise about composition before making the exposure."

Burden worked as an architectural photographer for several years, and eventually his pictures were used in a number of national magazines. "The recognition was gratifying, but I wasn't satisfied. I felt my pictures were a mirror of someone else's work rather than my own creation. I stopped concentrating solely on architecture, and tried my hand at some abstractions."

The care and patience which Burden had learned shooting architecture with big cameras proved an invaluable asset in this next phase of his work. "Gobos" (devices used in motion picture studios to prevent stray light from striking the camera lens), *page 83*, and "Birds on Tide Flats," *page 86*, are both purely design pictures. They do not tell a story. They do not give you, the viewer, much information about the subject. In them, composition—the visual relationships between elements in the frame—carries the entire con-



GOOD PICTURES (cont.) tent: the mood and the message.

"Gobos" is reminiscent of the pure non-objective arrangement of a Mondrian canvas. The precise and asymmetrical division of space, the rhythmic lines of the rods connecting and intersecting the checkerboard background, the punctuation of disk-shaped joints, and the extreme contrast in tonal values make up a tense and dynamic composition.

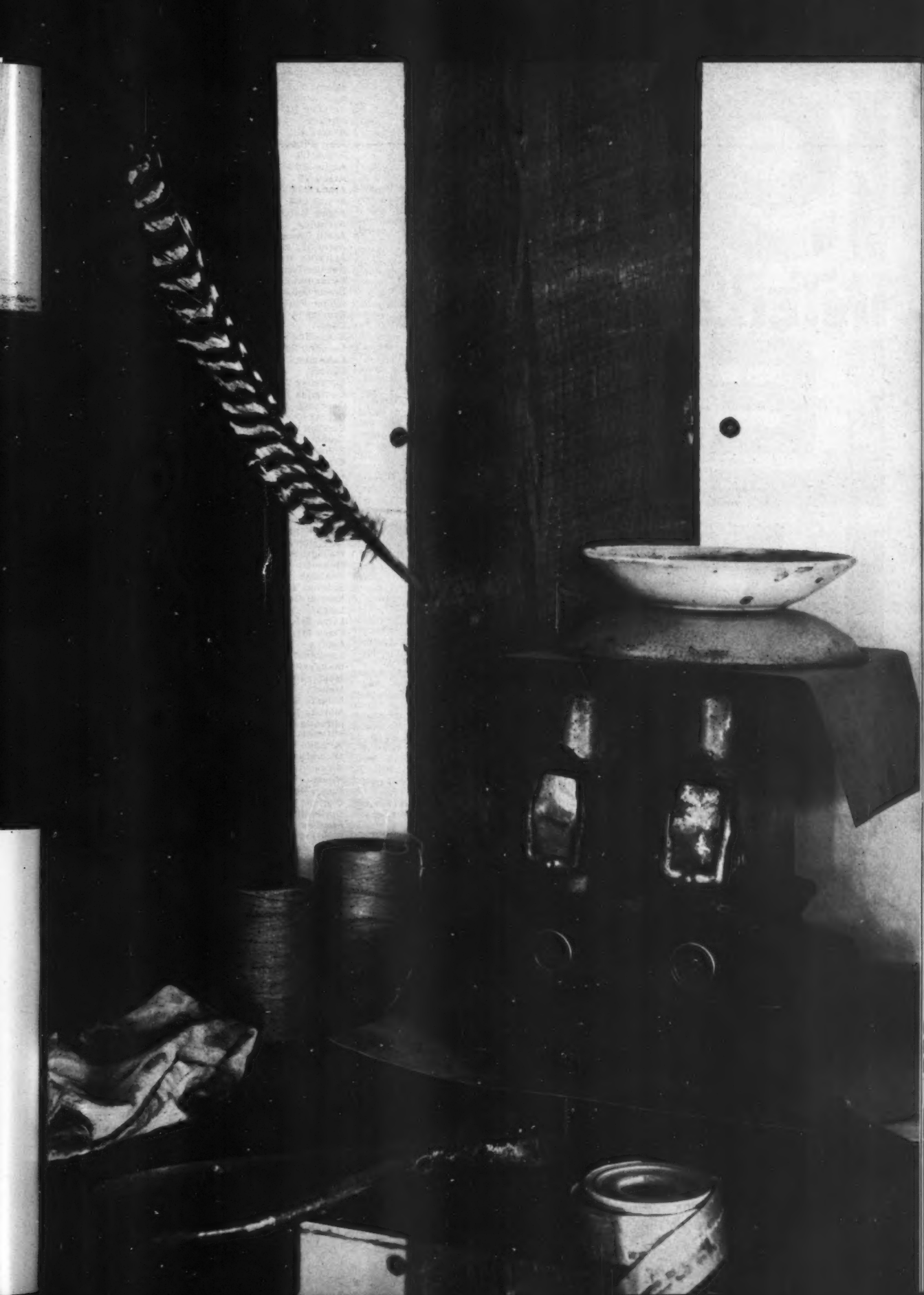
The design of "Birds" is completely different. It has none of the bold, geometric, poster quality of "Gobos." Although it seems less calculated, the placement of the individual birds punctuating the surface of the tidal pool is as precise in its own way as the organization of forms in "Gobos."

For the last few years, Burden has been doing picture essays. "It was chance," he says, "that started me thinking about sets of photographs on a single theme. One day I found myself (Continued on page 124)

Top: Birds on Tide Flats, Graphic View, 10-in. Ektar, Super-XX.

Bottom: Lourdes Madonna, Hasselblad, 135mm Ektar, Adox R17.

Opposite: Still Life, Trappist Monastery, 4 x 5 Graphic View, 8½-in. Ektar, Super-XX.



1960 INTERCHANGEABLE LENS LIST

MODERN'S EXCLUSIVE GUIDE FOR ALL 35MM AND 2 1/4 CAMERAS

● The code letters, **right**, tell you which of the 478 lenses, listed by focal length (short to long) and speed (slower ones first), will fit your camera. Listings include the name of manufacturer (if U. S.) or importer, and country of manufacture. Cameras with the same code accept the same lenses. For example, threaded Canon and Leica lenses (LC) fit the same lens mount.

● Contax and Nikon lenses may be interchanged with success, too, up to 50mm. In 85mm lenses or longer, the depth of focus is too shallow and the difference in back focus leads to unsharp pictures. Preset Exakta and Topcon R lenses may be used interchangeably. There are adapters permitting their use on Miranda, Canonflex, Alpa, and Minolta SR-2 single-lens reflex cameras.

● Automatic Exakta, Beseler Topcon, Minolta SR-2, Nikon F, and Canonflex lenses can be used automatically only on cameras for which they were designed, except for the Miranda AUX adapter which permits automatic operation of Exakta automatic lenses on all Miranda cameras.

● Adapters to take Leica lenses, for close-up focusing only, are available for Miranda and Minolta SR-2 cameras. Miranda also makes an adapter to take Pentacon, etc. (PC) lenses for manual operation only. Automatic lenses marked PC can be used automatically only on cameras with built-in automatic release mechanism.

● Short mount lenses for Canon, Leitz Visoflex I, and Novoflex reflex housings are interchangeable, and, with adapters, may be used on other housings. Kilfitt basic lenses, 90mm and up, can be used, with adapters, on Visoflex II and Accura reflex housings.

● Even though these lenses supposedly are interchangeable, have a competent repairman check the lens-camera adjustment for proper coupling. Prices are approximate.—Compiled by Norman Rothschild

Adams 352
Agfa Ambi-Silette
Agfaflex III, IV, V
Aires V
Akarex III
Alpa Reflex 4, 5, 6, 7, 4b, 5b, 6b, 8b
Argus C3
Argus C4
Argus 21
Argus C33
Argus C44
Argus Match-Matic
Asahiflex
Asahi Pentax
Astra 35, Astraflex 35
Astraflex II
Beseler-Topcon
Bessamatic
Braun Automatic Super III
Braun Paxette Reflex
Bronica
Canon
Canonflex
Catalina Reflex
Columbia
Consol
Contaflex Alpha, Beta, Prima
Contaflex III, IV, Rapid, Super
Contax I, II, IIIa, IIIb
Contax D, S
Contina III, Continamatic II, III
Corbina
Edixa Reflex
Exa, Exakta
Exakta 66
Gamma
Graflex Electric
Grantflex
Hasselblad 500C
Hasselblad 1000F, 1600F
Hasselblad Superwide
Heiland Pentax
Hexacon
Hexacon Supreme
Kalimar Reflex
Korelle Reflex
Leica
Leica M1, M2 only
Leica M1, M2, M3
Leotax
Lordomat, Lordomat C35
Mamiyaflex Professional C2
Master Reflex
Melcon
Minolta Super A
Minolta Reflex SR2
Miranda (with proper adapter)
Miranda (close-ups only)
Miranda (for own inner thread mount)
Miranda (for own outer bayonet mount)
Nikka
Nikon
Nikon Reflex
Olympic Ace
Optika Ila
Peerflex
Peerless
Pentacon
Petri Penta
Praktica, Praktiflex
Praktina
Primar Reflex
Prominent
Rectaflex
Reflex 66
Regula IIId
Retina IIC, IIIC, IIIC
Retina IIIS
Retina Reflex
Retina Reflex S
Ritaccon
Rittreck
Rival Reflex
Robot Jr. II, IIIa, IIIb, Star
Robot Royal 24
Robot Royal 36
Signet 80
Soligor 66 Reflex
Super D
Tanack
Topcon R
Tower
Tower 19
Tower 33, 34 Reflex
Tower 45
Unimark III
Verikon
Vitessa T
Wittnauer
Yashica YF

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RS
RR
RO
SI
KA
PC
LC
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LC

28mm f/4.5 Biogon. Zeiss Stuttgart, Germany. NI, \$199

28mm f/4 Auto-Nikkor. Nippon Kogaku, Japan. NR, \$199.50

28mm f/4 Nikkor. Nippon Kogaku, Japan. CX, LC, NI, \$199.50

28mm f/4 Super Angulon. Leitz, Germany. LG, LM, \$240

28mm f/4 Nikkor. Nippon Kogaku, Japan. LC-NI-CX, \$149.50

28mm f/3.5 Canon. Scopus Inc., Japan. LC, \$165

28mm f/4 Westrogon. Isco, Germany. Automatic diaphragm, EX \$149.50, PC \$150

28mm f/3.5 Retrofocus. Angenieux, France. Automatic diaphragm, AL, \$189

28mm f/5.6 Summaron. Leitz, Germany. LC, \$108; LM (with adapter), \$115.50

28mm f/4 Curtagon. Schneider, Germany. Automatic diaphragm, EX, \$149.50

28mm f/4 Curtagon. Schneider, Germany. Automatic diaphragm, RX \$86.50

28mm f/3.5 Auto Nikkor. Nippon Kogaku, Japan. Automatic diaphragm, NR, price to be announced

28mm f/3.5 Canon. Scopus Inc., Japan. LC, \$135

28mm f/3.5 Nikkor. Nippon Kogaku, Japan. NI-CX-LC, \$149.50

28mm f/3.5 Retrofocus Type II. Angenieux, France. Preset diaphragm, AL, \$139; EX-PC-PK-TR, \$120; non-preset, LC, \$120; Automatic diaphragm, AL, \$159

28mm f/3.5 Sandmar. Enna Werk, Germany. Basic lens, \$79.50. Automatic diaphragm mount for EX-PC, \$49.50

28mm f/3.5 Ultra-Lithagon. Enna Werk, Germany. RG, \$99.50; preset diaphragm, EX-PC, \$120

28mm f/2.8 Canon. Scopus Inc., Japan. LC, \$149.50

30mm f/4 Pantar. Zeiss Stuttgart, Germany. Lens component, CA-CN, \$69

30mm f/3.5 Xenagon. Schneider, Germany. RR-RS, \$89

30mm f/2.8 Eurygon. Rodenstock, Germany. Automatic diaphragm, EX-PC, \$179.50

35mm f/5.6 Curtar. Schneider, Germany. Lens component (not recommended for Retina Reflex), RE, \$59

35mm f/4.5 Ampligon. Futura Camera Co., Germany. FU, \$66.50

35mm f/4.5 Argus Cintagon. Argus Cameras Inc., U.S.A. AS, \$41.50

35mm f/4.5 Argus Sandmar. Argus Cameras Inc., U.S.A. AR-AD (with adapter), \$49.50

35mm f/4.5 Cintar. Argus Cameras Inc., U.S.A. AC, \$49.95

35mm f/4.5 Lithagon. Enna Werk, Germany. Preset diaphragm, EX-TR, \$59.50; AG (requires installation of interchangeable lens mount by Geiss-America), \$57.50, plus \$10 mount installation

35mm f/4.5 Primagon. Hugo Meyer, Germany. Preset diaphragm, EX-PC-PK-TR, \$59.50

35mm f/4.5 Wittnauer. Rodenstock, Germany. Wl, \$71.50

35mm f/4 Color-Ambion. Agfa, Germany. AM, \$60

35mm f/4 Curtagon. Schneider, Germany. Preset diaphragm, EX-PC-TR, \$74.50

35mm f/4 Curtar. Schneider, Germany. Lens component, RE, \$77.50

35mm f/4 Pro-Tessar. Zeiss Stuttgart, Germany. Lens component, CO, \$89

35mm f/4 Radiogon. Schneider, Germany. Preset diaphragm, PC-EX-TR, \$74.50

35mm f/4 Takumar. Asahi, Japan. Preset diaphragm, PC, \$64.50

35mm f/3.5 Acall. Photo. Import. & Distrib. Corp., Japan. CX, \$34.95; NI, \$34.95; preset diaphragm, EX-PC-TR, \$29.95

35mm f/3.5 Adams. Montgomery Ward, Germany. LO, \$22.95

35mm f/3.5 Alpagon. Schacht, Germany. Automatic diaphragm, AL, \$109

35mm f/3.5 Klapptik. A.G. Photo Distributors, Japan. LC, \$49.50; LM, \$59.50

35mm f/3.5 Komura. Komura, Japan. Preset diaphragm, EX-PC-TR-PK, \$59.95; non-preset, LC, \$54.95; CX-NI, \$69.95

35mm f/3.5 Lithagon. Enna Werk, Germany. RG, \$59.95; BA, \$69.50

35mm f/3.5 Nikkor. Nippon Kogaku, Japan. NI-CX, \$89.50

35mm f/3.5 Planar. Zeiss Stuttgart, Germany. CX-NI, \$102

35mm f/3.5 "RF" Summaron. Leitz, Germany. LM, \$139.50

35mm f/3.5 Rokkor. Minolta, Japan. MA, \$69.50

35mm f/3.5 Rotar. Scopus Inc., Japan. Preset diaphragm, EX-PC-TR, \$79.95

35mm f/3.5 Signet Wide Angle. Kodak, U.S.A. S, \$57.50

35mm f/3.5 Skoparon. Voigtlander, Germany. PT, \$99.50

35mm f/3.5 Soligor. Allied Impex, Japan. PC-EX-TR, \$74.50; non-preset, CX-LC-NI, \$64.95; AR, \$44.95; preset diaphragm, MI, \$74.50

35mm f/3.5 Special Travenar. Schacht, Germany. LO, \$29.50

35mm f/3.5 Summaron. Leitz, Germany. LC-LE, \$82.50

35mm f/3.5 Taika Taragon. Aetna-Optix, Japan. Preset diaphragm, EX-PC-TR, \$49.50

35mm f/3.5 Telisar. Masel Co., Japan. Preset diaphragm, EX-PC-PK-TR, \$59.95; LC, \$54.95

35mm f/3.5 Tower. Sears Roebuck, Germany. Automatic diaphragm, TO, \$44.50

35mm f/3.5 Travegon. Schacht, Germany. Automatic diaphragm, PC-EX, \$89.50

35mm f/3.5 Travetor. Schacht, Germany. UN, \$39.95

35mm f/3.5 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$55

35mm f/3.5 Westron. Isco, Germany. BR, \$47.95; DX, \$49.50; PC, \$49.50

35mm f/3.5 Xenagon. Schneider, Germany. (Complete with own coupled rangefinder) AK, \$79.50

35mm f/3.4 Ambion. Agfa, Germany. Automatic diaphragm, AF, \$72

35mm f/3.4 Skoparex. Voigtlander, Germany. VT, \$79.50

35mm f/3.4 Skoparex. Voigtlander, Germany. Automatic diaphragm, BE, \$79.50

35mm f/2.8 Accurar. Photographic Importing and Distributing Corp., Japan. LC, \$42.95

35mm f/2.8 Auto Nikkor. Nippon Kogaku, Japan. Automatic diaphragm, NR, \$169.50

35mm f/2.8 Auto Quinaron. Steinheil, Germany. Automatic diaphragm, EX, \$149.50

35mm f/2.8 Auto W-Rokkor. Minolta, Japan. Automatic diaphragm, MS, \$119.50

35mm f/2.8 Auto-Topcor. Tokyo Optical Co., Japan. Automatic diaphragm, TR, \$145

35mm f/2.8 Biogon. Zeiss Stuttgart, Germany. CX-NI, \$166

35mm f/2.8 Canon. Scopus Inc., Japan. LC, \$105

35mm f/2.8 Curtagon. Schneider, Germany. Automatic diaphragm, EX-PK, \$129.50; AL, \$149; PC, \$129.50; RX, \$74.50

35mm f/2.8 Flektagon. Zeiss Jena, Germany. Automatic diaphragm, EX-PK, \$149.50

35mm f/2.8 Komura. Komura, Japan. Preset diaphragm, EX-PC-PK-TR, \$69.95; non-preset, LC, \$69.95; CX-NI, price to be announced

35mm f/2.8 Miranda Soligor. Allied Impex, Japan. Automatic diaphragm, MO, \$109.95

35mm f/2.8 Sandmar. Enna Werk, Germany. Basic lens, \$69.50; automatic diaphragm mount for EX-PC, \$49.50

35mm f/2.8 Summaron. Leitz, Germany. LC-LE, \$105; RF model with optical viewing unit, LM, \$138

35mm f/2.8 Tanar. Kine Camera Co., Japan. CX-LC-NI, \$79.50

35mm f/2.8 Topcor. Tokyo Optical Co., Japan. LC, \$184

35mm f/2.8 Votar. Piesker, Germany. Preset diaphragm, AH-AL-EX-PC-PK-RF, \$75

35mm f/2.8 Xenogon. Schneider, Germany. LC, \$89.95; RO-RR, \$119

35mm f/2.8 Zuiko. Olympus, Japan. OA, \$49.95

35mm f/2.5 Kinegon. Kine Camera Co., Japan. Preset diaphragm, EX-PC-TR, \$79.50

35mm f/2.5 Nikkor. Nippon Kogaku, Japan. LC-NI-CX, \$139.50

35mm f/2.5 Petri. Petri, Japan. Preset diaphragm, PC, \$79.50

35mm f/2.5 Retrofocus Type 1. Angenieux, France. Preset diaphragm, EX-TR, \$99.50; non-preset, LC, \$99.50

35mm f/2.5 Rokkor. Minolta, Japan. MA, \$59.50

35mm f/2.5 Super-Lithagon. Enna Werk, Germany. Preset diaphragm, EX-TR, \$99.50

35mm f/2.5 Taika Taragon. Aetna-Optix, Japan. Preset diaphragm, EX-PC-TR, \$69.50

35mm f/2.5 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$87.50

35mm f/2.3 Auto-Takumar. Asahi, Japan. Automatic diaphragm, PC, \$124.50

35mm f/2 Canon R. Scopus Inc., Japan. Automatic diaphragm, CF, price to be announced

35mm f/2 Summicron. Leitz, Germany. LC, LE, \$174; RF model with optical viewing unit, LM, \$207

35mm f/1.9 Sandmar. Enna Werk, Germany. Basic lens, \$119. Automatic diaphragm mount for EX-PC, \$49.50

35mm f/1.8 Canon. Scopus Inc., Japan. LC, \$149.50

35mm f/1.8 Nikkor. Nippon Kogaku, Japan. LC-NI-CX, \$179.50

35mm f/1.7 Zunow. Zunow, Japan. LC, \$199.50

35mm f/1.5 Canon. Scopus Inc., Japan. LC, \$199.50

38mm f/4.5 Biogon. Zeiss Stuttgart, Germany. HS, \$470.25

38mm f/3.5 Radionar. Schneider, Germany. RS, \$59

38mm f/2.8 Xenar. Schneider, Germany. RR, \$79; RS, \$59

40mm f/4.5 Helioplan. Hugo Meyer, Germany. EX-TR, \$54.50

40mm f/4.5 Isogon. Schneider, Germany. PC-EX-TR, \$54.95

40mm f/3.5 Cassaron. Steinheil, Germany. EX-PC-PK-TR, \$54.50

40mm f/3.5 Makro-Kilar D. Kilfitt, Liechtenstein. Preset diaphragm, AL, \$99

40mm f/3.5 Makro-Kilar E. Kilfitt, Liechtenstein. Preset diaphragm, AL, \$79

40mm f/3.5 Tessar. Zeiss Jena, Germany. PC, \$85

40mm f/3.5 Xenagon. Schneider, Germany. DX, \$69.50

40mm f/2.8 Makro-Kilar D. Kilfitt, Liechtenstein. Preset diaphragm, AL-EX-PC-RF-TR, \$139.50

40mm f/2.8 Makro-Kilar E. Kilfitt, Liechtenstein. Preset diaphragm, AL-EX-PC-RF-TR, \$119.50

40mm f/2.8 Makro-Kilar P. Kilfitt, Liechtenstein. Preset diaphragm, PK, \$169.50

40mm f/1.9 Xenon. Schneider, Germany. RR, \$119; RS, \$79

45mm f/2.8 Xenar. Schneider, Germany. RO-RR, \$79

45mm f/1.9 Lithagon. Enna Werk, Germany. AS, \$99.50; AG (requires installation of interchangeable lens mount by Geiss-America), \$79.50, plus \$10 mount installation

50mm f/3.5 Alorar. Karl Heitz, Switzerland. Collapsible mount, AL, \$49

50mm f/3.5 CBSTAR. CBS Laboratories, U.S.A. In special focusing mounts for various 35mm single-lens reflexes, reflex housings, copying attachments, \$75

50mm f/3.5 Cintar. Argus, U.S.A. AR, \$30.50

50mm f/3.5 Elmar. Leitz, Germany. LC, \$51, LM, LE (with adapter), \$58.50

50mm f/3.5 Isconar. Isco, Germany. DX, \$29.50

50mm f/3.5 Micro Nikkor. Nippon Kogaku, Japan. LC-NI-CX, \$129.50

50mm f/3.5 Primotar. Hugo Meyer, Germany. Automatic diaphragm, f/2.8 focusing aperture, EX, \$79.50

50mm f/3.5 Takumar. Asahi Optical Co., Japan. AH-PC-PK, price to be announced

50mm f/3.5 Tessar. Zeiss Stuttgart, Germany. CX-NI, \$68

50mm f/3.5 Xenar. Schneider, Germany. PC, \$54.95

50mm f/2.8 Alfinon. Karl Heitz, Switzerland. Preset diaphragm, AL, \$79

50mm f/2.8 Canon. Scopus Inc., Japan. LC, \$69.50

50mm f/2.8 Cintagon. Argus, U.S.A. AS, \$89.50

50mm f/2.8 Color Skopar. Voigtlander, Germany. VT, \$52.50

50mm f/2.8 Color Skopar-X. Voigtlander, Germany. Automatic diaphragm, BE, \$52.50

50mm f/2.8 Color Solinar. Agfa, Germany. AM, \$69

50mm f/2.8 Elmar. Leitz, Germany. LC-LE-LM, \$60

50mm f/2.8 Nikkor. Caprod Ltd. Automatic diaphragm, BO, \$249.50

50mm f/2.8 R Topcor. Tokyo Optical Co., Japan. Preset diaphragm, EX-TR, price to be announced

50mm f/2.8 Retina Xenar. Schneider, Germany. Automatic diaphragm, RX, \$52

50mm f/2.8 Tessar. Zeiss Jena, Germany. Automatic diaphragm, EX-PK-TR, \$100; PC, \$90; preset diaphragm, PC, \$59

50mm f/2.8 Travenar. Schacht, Germany. Preset diaphragm, PC-EX-TR, \$69.95; PK-RF, \$73; automatic diaphragm, PC, \$49.50

50mm f/2.8 Westanar. Isco, Germany. Automatic diaphragm, EX, \$69.50; PC, \$59.50

50mm f/2.8 Xenar. Schneider, Germany. DX, \$44.50; EX-PC-TR, \$64.95

50mm f/2 Dual-Range Summicron. Leitz, Germany. LM-LE, \$168.50

50mm f/2 Nikkor. Nippon Kogaku, Japan. NI-CX, \$106; LC-LM, \$109.50

50mm f/2 Rokkor. Minolta, Japan. MA, \$59.50

50mm f/2 Sonnar. Zeiss Stuttgart, Germany. CX-NI, \$119; RO-RR, \$149

50mm f/2 Summicron. Leitz, Germany. Collapsible mount, LC, \$129; LM-LE (with adapter), \$136.50; LM-LE (rigid mount), \$129

50mm f/2 Topcor. Tokyo Optical Co., Japan. LC, \$185

50mm f/2 Ultron. Voigtlander, Germany. PT, \$119.50

50mm f/2 Westagon. Isco, Germany. Automatic diaphragm, EX, \$110; PC, \$90

50mm f/1.9 Cintagon. Argus, Germany. AS, \$79.95

MORE LENSES ON NEXT PAGE

LENS LIST (cont.)

- 50mm f/1.9 Color-Ennalyt. Enna Werk, Germany. Automatic diaphragm, PC, \$79.50
- 50mm f/1.9 Heligon. Rodenstock, Germany. Automatic diaphragm, EX-PC, \$169.50
- 50mm f/1.9 Miranda Soligor. Allied Impex, Japan. Automatic diaphragm, MO, \$89.95; preset diaphragm, MI, \$59.95
- 50mm f/1.9 Sandmar. Enna Werk, Germany. Basic lens, \$69.50. Automatic diaphragm mount for EX-PC, \$49.50
- 50mm f/1.9 Westrocolor. Isco, Germany. Automatic diaphragm, EX, \$130
- 50mm f/1.9 Xenon. Schneider, Germany. Automatic diaphragm, AL, \$129; EX-PK, \$179.50; PC, \$169.95; RX, \$87.50; preset diaphragm, AL, \$99
- 50mm f/1.8 Canon. Scopus Inc., Japan. LC, \$110; automatic diaphragm, CF, \$129.95
- 50mm f/1.8 Macro-Switar Apochromat. Kern, Switzerland. Automatic diaphragm, AL, \$199
- 50mm f/1.8 Rokkor. Minolta, Japan. MA, \$75.50
- 50mm f/1.8 Switar Apochromat. Kern, Switzerland. Preset diaphragm, AL, \$139
- 50mm f/1.8 Yashinon. Yashica, Japan. Replacement only. Price on request
- 50mm f/1.5 Angenieux. Angenieux, France. Preset diaphragm, EX-TR, \$165; non-preset, LC, \$135
- 50mm f/1.5 Canon. Scopus Inc., Japan. LC, \$139.50
- 50mm f/1.5 Nokton. Voigtlander, Germany. PT, \$169.50
- 50mm f/1.5 Sonnar. Zeiss Stuttgart, Germany. CX-NI, \$139
- 50mm f/1.5 Summarit. Leitz, Germany. LC-LE-LM, \$99
- 50mm f/1.4 Canon. Scopus Inc., Japan. LC, \$159.95
- 50mm f/1.4 Nikkor. Nippon Kogaku, Japan. NI-CX, \$151.50; LC-LM, \$159.50
- 50mm f/1.4 Summilux. Leitz, Germany. LE-LM, \$198
- 50mm f/1.2 Canon. Scopus Inc., Japan. LC, \$210
- 50mm f/1.1 Nikkor. Nippon Kogaku, Japan. NI-CX, \$299.50; LC-LM, \$315
- 50mm f/1.1 Zunow. Zunow, Japan. LC, \$199.50
- 52mm f/3.5 Kaligar. Kalimar, Inc., Japan. Preset diaphragm, KA, \$99.50
- 55mm f/2 Solagor. Agfa, Germany. Automatic diaphragm, AF, \$105
- 55mm f/1.9 Auto-Quinon. Steinheil, Germany. Automatic diaphragm, EX, \$169.50; PK, \$160; PC, \$124.50
- 55mm f/1.8 Auto-Rokkor PF. Minolta, Japan. Automatic diaphragm, MS, \$110
- 55mm f/1.8 Auto-Takumar. Asahi, Japan. Automatic diaphragm, PC, \$112.50
- 58mm f/2 Auto Biotar. Zeiss Jena, Germany. Automatic diaphragm, EX, \$162.80; PK, \$158
- 58mm f/2 Takumar. Asahi Optical Co., Japan. Preset diaphragm, AH-PC, price to be announced
- 58mm f/1.9 Primoplan. Hugo Meyer, Germany. Preset diaphragm, PC, \$59
- 58mm f/1.8 Auto-Topcor. Tokyo Optical Co., Japan. Automatic diaphragm, TR, \$145
- 58mm f/1.5 Miranda. Miranda, Allied Impex, Japan. Automatic diaphragm, MO, \$149.95
- 58mm f/1.4 Auto Nikkor. Nippon Kogaku, Japan. Automatic diaphragm, NR, \$155
- 59mm f/3.5 Repro-Skopar. Voigtlander, Germany. Incorporated in copying device, PT, \$139.50 for complete outfit
- 60mm f/5.6 Distagon. Zeiss Stuttgart, Germany. Preset diaphragm, HA, \$189.50; LVS Compur shutter and automatic diaphragm, HC, \$312.50
- 60mm f/1.2 Hexanon. Konica Camera Co., Japan. LC, \$359.50
- 65mm f/3.5 Elmar. Preset diaphragm, in mount for Visoflex II, \$120; lens only, \$84
- 75mm f/4 Pantar. Zeiss Stuttgart, Germany. Lens component, CA-CN, \$71
- 75mm f/4 Tele-Xenar. Schneider, Germany. RO-RR, \$109; RS, \$99
- 75mm f/3.5 Xenar. Schneider, Germany. Preset diaphragm, AL, \$119
- 75mm f/2.8 Nikkor. Caprod Ltd., Japan. Automatic diaphragm, BO, \$119.50
- 75mm f/1.9 Primoplan. Hugo Meyer, Germany. Preset diaphragm, EX-PK-TR, \$135
- 75mm f/1.5 Biotar. Zeiss Jena, Germany. Preset diaphragm, EX-PK-TR, \$216.50
- 80mm f/5.6 Zuiko. Olympus, Japan. OA, \$49.95
- 80mm f/4 Longar. Schneider, Germany. Lens component, RE, \$80
- 80mm f/3.5 Komura. Komura, Japan. Preset diaphragm, EX-PC-TR, price to be announced
- 80mm f/3.5 Primotar. Hugo Meyer, Germany. EX-TR, \$69.50
- 80mm f/2.8 Biometar. Zeiss Jena, Germany. Preset diaphragm, PK, \$120
- 80mm f/2.8 Mamiya. Caprod Ltd., Japan. Matched pair of lenses on board with shutter, MC, \$79.50
- 80mm f/2.8 Planar. Zeiss Stuttgart, Germany. LVS Compur shutter and automatic diaphragm, MC, \$261.50
- 80mm f/2.8 Tessar. Zeiss Jena, Germany. Preset diaphragm, EX-TR, \$79.50; HA, \$170.50
- 80mm f/2.8 Tessar. Zeiss Stuttgart, Germany. Preset diaphragm, HA, \$170.50
- 80mm f/2 Xenon. Schneider, Germany. AL, \$129; PC, \$159.95
- 83mm f/1.9 Takumar. Asahi Optical Co., Japan. Preset diaphragm, AH-PC, \$134.50
- 85mm f/4 Pro-Tessar. Zeiss Stuttgart, Germany. Lens component, CO, \$99
- 85mm f/4 Tele-Arton. Schneider, Germany. Automatic diaphragm, RX, \$78.50
- 85mm f/4 Triotar. Zeiss Stuttgart, Germany. CX, \$106
- 85mm f/4 Wittnauer. Rodenstock, Germany. WI, \$82.50
- 85mm f/2.8 Culminar. Steinheil, Germany. EX-PC-TR, \$69.50; LC, \$84.50
- 85mm f/2.8 Tele Rokkor. Minolta, Japan. MA, \$99.50
- 85mm f/2.8 Travenar. Schacht, Germany. Preset diaphragm, EX-PC-TR, \$93.95; PK-RF, \$97; non-preset, LC, \$89.95
- 85mm f/2 Nikkor. Nippon Kogaku, Japan. NI-CX-LC, \$175
- 85mm f/2 Sonnar. Zeiss Stuttgart, Germany. CX, \$189
- 85mm f/2 Tele Astra. Sterling-Howard, Germany. Preset diaphragm, AX-EX-MR-PC-KR-TR, \$74.95
- 85mm f/1.9 Canon. Scopus Inc., Japan. LC, \$169.50
- 85mm f/1.5 Canon. Scopus Inc., Japan. LC, \$235
- 85mm f/1.5 Lithagon. Enna Werk, Germany. LC, \$199.50
- 85mm f/1.5 Nikkor. Nippon Kogaku, Japan. NI-CX-LC, \$299.50
- 85mm f/1.5 Summarex. Leitz, Germany. LC, \$360; LM (with adapter), \$367.50
- 90mm f/5.5 Adams. Montgomery Ward, Germany. LO, \$27.95
- 90mm f/4 Color Telinear. Agfa, Germany. AM, \$72
- 90mm f/4 Elmar. Leitz, Germany. Rigid mount, LC-LE-LM, \$93; collapsible mount, LE-LM, \$126; focusing mount to use lens elements of rigid mount on Visoflex II, \$16.50
- 90mm f/4 Signet Telephoto. Kodak, U.S.A. SI, \$69.50
- 90mm f/4 Tele-Arton. Schneider, Germany. RR, \$119
- 90mm f/4 Travenar. Schacht, Germany. LO, \$49.50; UN, \$79.95
- 90mm f/3.5 Optika Taragon. Aetna-Optix, Japan. Preset diaphragm, OP, price to be announced
- 90mm f/3.5 Tele-Ennalyt. Enna Werk, Germany. BA-RG, \$69.50
- 90mm f/3.5 Tele-Xenar. Schneider, Germany. AK (complete with own coupled rangefinder), \$79.50; preset diaphragm, AL, \$129; EX-PC-TR, \$74.50; non-preset, DX, \$79.50
- 90mm f/3.5 Topcor. Tokyo Optical Co., Japan. Preset diaphragm, EX-TR, \$143.75; LC \$182
- 90mm f/3.5 Xenar. Schneider, Germany. Preset diaphragm, PC-EX, \$74.50
- 90mm f/3.4 Telinear. Agfa, Germany. Automatic diaphragm, AF, \$72
- 90mm f/2.8 Altair. Schacht, Germany. Preset diaphragm, AL, \$119
- 90mm f/2.8 Elmarit. Leitz, Germany. LC-LE-LM, \$150; adapter to use on Visoflex II, \$3.60
- 90mm f/2.8 Makro-Kilar. Kilfitt, Germany. Basic lens, \$199.50; in mount for HA, \$219.50; adapters for EX-LC-PC-TR, \$12; for AL-RF, \$16.50; HA, \$20; in Alpa mount \$229
- 90mm f/2.5 Alifitar. Angenieux, France. Automatic diaphragm, AL, \$149
- 90mm f/2.5 Angenieux Type Y1. Angenieux, France. EX-LC-TR, \$94.50
- 90mm f/2 Summicron. Leitz, Germany. LC-LE-LM, \$249.50; in short mount for Visoflex II, with clickstops or preset diaphragm, \$216; installation of preset diaphragm, \$12
- 90mm f/1.8 Angenieux Type P1. Angenieux, France. EX-TR, \$149
- 100mm f/5.5 Telomar. Voigtlander, Germany. Complete with reflex housing, PT, \$159.50
- 100mm f/4.8 Dynaret. Voigtlander, Germany. VT, \$79.50
- 100mm f/4.5 Argus-Sandmar. Argus Cameras Inc., U.S.A. AR-AD (with adapter), \$49.50
- 100mm f/4.5 Cintar. Argus Cameras Inc., U.S.A. AC, \$49.95
- 100mm f/4.5 Dynaron. Voigtlander, Germany. PT, \$89.50
- 100mm f/4.5 Isconar. Isco, Germany. EX-TR, \$25
- 100mm f/4.5 Lithagon. Enna Werk, Germany. AG (requires installation of interchangeable lens mount by Geiss-America), \$59.50, plus \$10 mount installation
- 100mm f/4 Rotelar. Rodenstock, Germany. Automatic diaphragm, EX-PC, \$144.50
- 100mm f/3.5 Auto Quinar. Steinheil, Germany. Automatic diaphragm, EX, \$109.50
- 100mm f/3.5 Auto Tele Rokkor. QE. Minolta, Japan. Automatic diaphragm, MS, \$129.50
- 100mm f/3.5 Canon. Scopus Inc., Japan. LC, \$110
- 100mm f/3.5 Cintagon. Argus Cameras Inc., U.S.A. AS, \$44.50
- 100mm f/3.5 Takumar. Asahi Optical Co., Japan. AH-PC, \$79.50
- 100mm f/2.8 Astragon. Sterling-Howard, Germany. Preset diaphragm, AX-EX-HA-MR-PC-KR-TR, \$44.50
- 100mm f/2.8 Auto-Topcor. Tokyo Optical Co., Japan. Automatic diaphragm, TR, \$180
- 100mm f/2.8 Tele-Votar. Piesker, Germany. Preset diaphragm, basic lens, \$59.50; adapters for AL-AH-EX-HA-PC-MR-AX-KA-KR-PK-RF-TR, for LC-NI-CX (uncoupled), each \$11.85
- 100mm f/2.8 Trioplan. Hugo Meyer, Germany. Preset diaphragm, EX-PC-TR, \$59.50; Automatic diaphragm, EX, \$129.50
- 100mm f/2 Alpa Apochromat. Kinoptik, France. Preset diaphragm, AL, \$249
- 100mm f/2 Canon. Scopus Inc., Japan. LC, \$149.95; automatic diaphragm, CF, \$199
- 100mm f/2 Zunow. Zunow, Japan. LC, \$199.50
- 105mm f/4.5 Xenar. Schneider, Germany. EX-PC-TR, \$69.95
- 105mm f/3.5 Komura. Komura, Japan. Preset diaphragm, EX-PC, price to be announced
- 105mm f/3.5 Mamiya. Caprod Ltd., Japan. Matched pair of lenses on board with shutter, MC, \$93
- 105mm f/3.5 Xenar. Schneider, Germany. PC, \$79.95
- 105mm f/2.8 Auto-Takumar. Asahi, Japan. Automatic diaphragm, PC, \$124.50
- 105mm f/2.8 Takumar. Asahi, Japan. Preset diaphragm, PC, \$84.50
- 105mm f/2.5 Auto-Nikkor. Nippon Kogaku, Japan. Automatic diaphragm, NR, \$195
- 105mm f/2.5 Nikkor. Nippon Kogaku, Japan. NI-CX-LC, \$152.50
- 115mm f/3.5 Panflex Tessar. Zeiss Stuttgart, Germany. Automatic diaphragm. For use only with Panflex Reflex Housing, CX, \$179
- 125mm f/2.5 Hektor. Leitz, Germany. LC-LM (requires reflex housing such as Visoflex), \$157.50
- 125mm f/2.5 Telagor. Tewe, Germany. AH-AL-EX-PC-PK-RF-TR, \$180
- 130mm f/4 Color Telinear. Agfa, Germany. AM, \$112
- 135mm f/4.5 Accurar. Photo. Import. & Distrib. Corp., Japan. In barrel for bellows unit, EX-PC-TR, \$24.95
- 135mm f/4.5 Actinar. Aetna-Optix, Japan. OP, \$34.25
- 135mm f/4.5 Culminar. Steinheil, Germany. EX-PC-TR, \$69.50; LC, \$75
- 135mm f/4.5 Hektor. Leitz, Germany. LC-LE-LM, \$126; in short mount for use with Visoflex reflex housing, \$106.50
- 135mm f/4.5 Mamiya. Caprod Ltd., Japan. Matched pair of lenses on board with shutter, MC, \$103
- 135mm f/4.5 Soligor. Allied Impex, Japan. AR, \$49.95
- 135mm f/4.5 Tele Rokkor. Minolta, Japan. MA, \$99.50
- 135mm f/4.5 Tellisar. Masel Co., Germany. EX-PC-PK-TR, \$34.95
- 135mm f/4.5 Travenon. Schacht, Germany. EX-PC-TR, \$49.95; PK-RF, \$53; LC, \$59.95
- 135mm f/4.5 Will. Photo. Import. & Distrib. Corp., Germany. In short mount for use with bellows, reflex housings, \$24.95
- 135mm f/4.5 Xenar. Schneider, Germany. EX-TR, \$84.95
- 135mm f/4 Color Telinear. Agfa, Germany. Automatic diaphragm, AF, \$96
- 135mm f/4 Nikkor. Nippon Kogaku, Japan. Preset diaphragm, short mount for bellows attachment for Nikon reflex housing, \$120
- 135mm f/4 Rotelar. Rodenstock, Germany. Automatic diaphragm, EX-PC, \$139.50
- 135mm f/4 Sonnar. Zeiss Stuttgart, Germany. CX, \$146
- 135mm f/4 Special Travenar. Schacht, Germany. LO, \$64.50
- 135mm f/4 Super Dynaret. Voigtlander, Germany. VT, \$89.50
- 135mm f/4 Super Dynarex. Voigtlander, Germany. Automatic diaphragm, BE, \$79.50
- 135mm f/4 Tele-Xenar. Schneider, Germany. DX, \$89.50; RR, \$149; automatic diaphragm, RX, \$87.50
- 135mm f/4 Tower. Sears Roebuck, Germany. Automatic diaphragm, TO, \$59.50
- 135mm f/4 Triotar. Zeiss Jena, Germany. Preset diaphragm, EX-PC-PK-TR, \$85
- 135mm f/4 Wittnauer. Rodenstock, Germany. WI, \$109.50
- 135mm f/3.8 Tele-Colinar. Arco, Japan. LC, \$66.95

135mm f/3.5 Acall. Photo. Imp. & Dist. Corp., Japan. CX, \$49.95; NI, \$49.95; LC \$39.95

135mm f/3.5 Auto-Nikkor. Nippon Kogaku, Japan. Automatic diaphragm, NR, \$179.50

135mm f/3.5 Auto-Quinar. Steinheil, Germany. Automatic diaphragm, EX, \$119.50

135mm f/3.5 Canon. Scopus Inc., Japan. CF-LC, \$125

135mm f/3.5 Ektar. Kodak, U.S.A. Preset diaphragm, HA, \$279.50

135mm f/3.5 Ennastor. Enna Werk, Germany. BR, \$69.95; EX-TR, \$69.50

135mm f/3.5 Jupien. Gem-Klein, Japan. Preset diaphragm, EX-PC-TR, \$49.95

135mm f/3.5 Klaroptik. A. G. Photo Distributors, Japan. LC, \$49.50; LM, \$59.50

135mm f/3.5 Lithagon. Enna Werk, Germany. AG (requires installation of interchangeable lens mount by Geiss-America), \$99.50, plus \$10 mount installation

135mm f/3.5 Nikkor. Nippon Kogaku, Japan. NI-CX-EX-LC-TR, \$135; automatic diaphragm, BO, \$210

135mm f/3.5 Petri. Petri, Japan. Preset diaphragm, PC, 4-element, \$49.95

135mm f/3.5 Primotar. Hugo Meyer, Germany. Preset diaphragm, EX-PC-PK-TR, \$89.50; ES, \$99.50

135mm f/3.5 Soligor. Allied Impex, Japan. Preset diaphragm, EX-PC-TR, \$59.95; non-preset, LC-CX-NI, \$69.95; preset diaphragm, MI, \$59.50; automatic diaphragm, MO, \$99.95

135mm f/3.5 Sonnar. Zeiss Stuttgart, Germany. CX, \$164

135mm f/3.5 Spectra Eligon. Aetna-Optix, Japan. Preset diaphragm, EX-PC-TR, \$49.50

135mm f/3.5 Takumar. Asahi, Japan. Preset diaphragm, AH-PC, \$89.50

135mm f/3.5 Tantar. Kine Camera Co., Japan. LC, \$79.50

135mm f/3.5 Tele-Astra. Sterling-Howard, Japan. Preset diaphragm, EX-PC-TR, \$33.75; non-preset, LC, \$48.95; LM, \$56.90

135mm f/3.5 Tele-Ennalyt. Enna Werk, Germany. RG, \$89.50; BA, \$74.50; BR, \$69.95; PC, \$59.50

135mm f/3.5 Tele-Sandmar. Enna Werk, Germany. Basic lens, \$69.50; automatic diaphragm mount for EX-PC, \$49.50

135mm f/3.5 Tele-Tantar. Kine Camera Co., Japan. CX-LC-NI, \$79.50

135mm f/3.5 Tele-Votar. Plesker, Germany. Preset diaphragm, basic lens, \$69.50; adapters for AL-AH-EX-HA-MR-PC-KA-KR-PK-RF-TR, each \$11.85; LC-NI-CX (uncoupled), \$11.85; lens elements only for use on reflex housings, \$42.50

135mm f/3.5 Tele-Westanar. Isco, Germany. PC, \$59.50; automatic diaphragm, PC, \$99.50

135mm f/3.5 Tele-Xenar. Schneider, Germany. Automatic diaphragm, AL, \$159; EX, \$139.50; preset diaphragm, EX-PC-PK-TR, \$99.50; non-preset, LC, \$114.50

135mm f/3.5 Telisar. Masel Co., Germany. Preset diaphragm, EX-PC-PK-TR, \$69.95; non-preset, LC, \$69.95

135mm f/3.5 Topcor. Tokyo Optical Co., Japan. Preset diaphragm, IREX, \$139.75

135mm f/3.5 Travegon. Schacht, Germany. PK, \$53

135mm f/3.5 Travenar. Schacht, Germany. Preset diaphragm, EX-PC-TR, \$89.95; PK-RF, \$93; non-preset, LC, \$86.95; UN, \$99.95

135mm f/3.5 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$49.50

135mm f/3.2 Algular. Karl Heitz, Switzerland. Preset diaphragm, AL, \$129

135mm f/2.8 Auto-Quinar. Steinheil, Germany. Automatic diaphragm, EX, \$189.50

135mm f/2.8 Auto-Spiraton. Photo. Imp. & Dist., Japan. Automatic diaphragm, EX, \$79.95

135mm f/2.8 Jupien. Gem-Klein, Japan. Preset diaphragm, 4-element, EX-PC-TR, \$69.95; 5-element, \$89.95

135mm f/2.8 Petri. Petri, Japan. Preset diaphragm, PC, 4-element, \$69.95; 5-element, \$89.95

135mm f/2.8 Quinar. Steinheil, Germany. Preset diaphragm, EX-TR, \$100; PC-PK, \$119.50

135mm f/2.8 Soligor. Allied Impex, Japan. Preset diaphragm, EX-PC-TR, \$89.95; MI, \$89.50; automatic diaphragm, EX-PC-MO, \$89.95

135mm f/2.8 Spectra Coligon. Aetna-Optix, Japan. Preset diaphragm, EX-PC-TR, \$69.50

135mm f/2.8 Spiraton. Photo. Imp. & Dist., Japan. Preset diaphragm, EX-PC-TR, \$29.95

135mm f/2.8 Tele-Astra. Sterling-Howard, Japan. Preset diaphragm, EX-PC-TR, \$44.50; automatic diaphragm, EX, \$79.50

135mm f/2.8 Tele-Iscaron. Isco, Germany. Automatic diaphragm, EX, \$150

135mm f/2.8 Tele-Iscaron. Isco, Germany. Preset diaphragm, EX-PC, \$200; automatic diaphragm, PC-EX, \$119.50

135mm f/2.8 Tele Rokkor PG. Minolta, Japan. Automatic diaphragm, MS, \$129.50

135mm f/2.8 Telisar. Masel Co., Japan. Preset diaphragm, \$69.95

135mm f/2.8 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$64.50; automatic diaphragm, EX, \$129.50

135mm f/2.5 Angenieux Type P2. Angenieux, France. EX-TR, \$179.50

135mm f/2.5 Canon. Scopus Inc., Japan. With reflex housing, LC, price to be announced

135mm f/2 R Topcor. Tokyo Optical Co., Japan. Preset diaphragm, EX-TR, \$335

150mm f/5.5 Tele-Megor. Hugo Meyer, Germany. Preset diaphragm, EX-PC-PK-TR, \$55.95

150mm f/5.5 Tele-Xenar. Schneider, Germany. EX-TR, \$64.95

150mm f/4.5 Super Dynaron. Voigtlander, Germany. PT, \$105

150mm f/4.5 Tele-Xenar. Schneider, Germany. RS, \$139

150mm f/4.5 Westanar. Isco, Germany. Preset diaphragm, PC, \$59.50

150mm f/4 Kaligar. Kalimar Inc., Japan. Preset diaphragm, KA, \$79.50

150mm f/4 Soligor. Allied Impex, Japan. Preset diaphragm, KA, \$74.95

150mm f/4 Sonnar. Zeiss Stuttgart, Germany. LVS Compur shutter and automatic diaphragm, HC, \$313

150mm f/3.5 Tele-Astra. Sterling-Howard, Germany. Preset diaphragm, AL-AH-EX-HA-PC-MR-AX-KA-KR-PK-RF-TR, \$69.50

150mm f/3.5 Tele-Kilar. Preset diaphragm, basic lens, \$164.50; adapters for EX-PC-TR, \$15; LC (uncoupled), \$15; HA, \$20; AL-PK-RF, Visoflex II, \$15

150mm f/3 Teleagon. Tewe, Germany. AH-AL-EX-PC-PK-RF-TR, \$180

150mm f/2.3 Pantachar. Astro, Germany. For all single-lens reflexes, \$275; with reflex housing, LC, \$425

150mm f/1.8 Pantachar. Astro, Germany. For all single-lens reflexes, \$345; with reflex housing, LC, \$495

180mm f/5.5 Tele-Astra. Sterling-Howard, Germany. Preset diaphragm, AX-EX-KR-MR-PC-HA-TR, \$69.50

180mm f/5.5 Tele-Megor. Hugo Meyer, Germany. Preset diaphragm, EX-PC-PK-TR, \$82.95

180mm f/5.5 Tele-Votar. Plesker, Germany. Preset diaphragm, basic lens, \$72; adapters for AL-AH-EX-HA-MR-PC-KA-KR-RF-TR, \$11.85; for LC-CX-NI (uncoupled), \$11.85

180mm f/5.5 Tele-Xenar. Schneider, Germany. EX-PC-TR, \$84.95

180mm f/5 Astragon. Sterling-Howard, Germany. AX-EX-KR-MR-PC-RX-HA-TR, \$117.50; with reflex housing, LC, \$211.50

180mm f/4.5 Actinar. Aetna-Optix, Japan. OP, \$59.95

180mm f/4.5 Alefar. Karl Heitz, Switzerland. Preset diaphragm, AL, \$139

180mm f/4.5 Alitar. Angenieux, France. Automatic diaphragm, AL, \$169

180mm f/4.5 Mamiya. Caprod Ltd., Japan. Matched pair of lenses on board with shutter, MC, \$139.50

180mm f/4.5 Rotelar. Rodenstock, Germany. Preset diaphragm, EX-PC, \$139.50

180mm f/4.5 Westanar. Isco, Germany. Preset diaphragm, PC, \$79.50

180mm f/3.5 Primotar. Hugo Meyer, Germany. Preset diaphragm, ES, \$149.50; EX-PC-PK-TR, \$115

180mm f/2.8 Sonnar. Zeiss Jena, Germany. EX-PC-TR-HA, \$165 to \$250

180mm f/2.8 Tele-Athenar. Century, U.S.A. For all 35mm single-lens reflex cameras, \$169.50

180mm f/2.8 Tele-Iscaron. Isco, Germany. Preset diaphragm, EX-PC, \$200

180mm f/2.5 Nikkor. Nippon Kogaku, Japan. Preset diaphragm, short mount, NI (for Nikon reflex housing), \$399.50; adapter for NR, \$29.95; in mount for Leitz Visoflex I, \$399.50; BO, price to be announced

200mm f/5.5 Tele-Xenar. Schneider, Germany. Preset diaphragm, EX-PC-PK-TR, \$99.50; non-preset, RR, \$169

200mm f/5.5 Votar. Plesker, Germany. Preset diaphragm, basic lens \$79.50; adapters for AL-AH-EX-HA-MR-PC-KA-KR-RF-TR, each \$11.85

200mm f/4.5 Quinar. Steinheil, Germany. Preset diaphragm, EX-PC-TR, \$149.50; for Edixa Reflex, \$129.50

200mm f/4.5 Tele-Ennalyt. Enna Werk, Germany. RG, price to be announced; BR-BA, \$149.50; EX-TR, \$139

200mm f/4 Telyt. Leitz, Germany. Preset diaphragm, LC-LE-LM (for use with Visoflex reflex housing), \$198

200mm f/3.5 Canon. Scopus Inc., Japan. For use with reflex housing, LC, \$199.50; adapter for Canonflex, \$35

200mm f/3.5 Jupien. Kine Camera Co., Japan. Preset diaphragm, EX-PC-TR, \$149.50

200mm f/3.5 Komura. Komura, Japan. Preset diaphragm, PC-EX-TR, \$149.50

200mm f/3.5 Petri. Petri, Japan. Preset diaphragm, PC, \$149.50

200mm f/3.5 Spectra Coligon. Aetna-Optix, Japan. Preset diaphragm, EX-PC-TR, \$119.50

200mm f/3.5 Spectra Tele Coligon. Aetna-Optix, Japan. Preset diaphragm, EX-TR, \$159.50

200mm f/3.5 Takumar. Asahi, Japan. Preset diaphragm, PC, \$189.50

200mm f/3.2 Telagon. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF, \$240

210mm f/6.3 Actinar. Aetna-Optix, Japan. OP, \$58.45

210mm f/4.5 Actinar. Aetna-Optix, Japan. OP, \$79.50

215mm f/3.5 Tele-Athenar. Century, U.S.A. For all 35mm single-lens reflex cameras, \$149.50

240mm f/4.5 Noflexar Follow Focus. Novoflex, Germany. EX-PC-PK-AL-TR, \$249.50; AX-ES-HA-MA, \$139.50

240mm f/4.5 Tele-Ennalyt. Enna Werk, Germany. PC, price available on request

250mm f/5.6 Sonnar. Zeiss Stuttgart, Germany. HA, \$299.50; LVS Compur shutter and automatic diaphragm, HC, \$332

250mm f/5.5 Tele-Astra. Sterling-Howard, Germany. Preset diaphragm, AX-EX-HA-PC-KR-MR-TR, \$79.50

250mm f/5.5 Tele-Megor. Hugo Meyer, Germany. Preset diaphragm, EX-PK, \$132.15

250mm f/5.5 Tele-Votar. Plesker, Germany. Preset diaphragm, basic lens, \$178; adapters for AL-AH-EX-HA-MR-PC-PK-AX-KA-KR-RF-TR, \$14; for LC-NI-CX (uncoupled), \$14; also in mount for Leica reflex housing

250mm f/4.5 Miranda Soligor. Allied Impex, Japan. Preset diaphragm, MI, \$139.95

250mm f/4 Nikkor. Nippon Kogaku, Japan. NI (for Nikon reflex housing), \$224.50; adapter for NR, \$29.95; in mount for Leitz Visoflex I, \$224.50; BO, price to be announced

250mm f/4 Tele Rokkor. Minolta, Japan. Preset diaphragm, MS, \$215

250mm f/4 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$219.50

300mm f/5.6 Noflexar Follow Focus. Novoflex, Germany. EX-PC-PK-AL-TR, \$257.50

300mm f/5.6 Tele-Kilar. Kilfitt, Germany. Basic lens, preset diaphragm, \$197.50; adapters for EX-PC-TR, \$15; LC (uncoupled), \$15; HA, \$20; AL-PC-RF, \$24.50; Visoflex II, \$15

300mm f/5.5 Tele-Xenar. Schneider, Germany. RR, \$199

300mm f/5 Astragon. Sterling-Howard, Germany. AL-AX-EX-HA-MR-PC-PK-AH-TR-KR-RF, \$109.50

300mm f/5 Fernbild. Astro, Germany. For all single-lens reflexes, \$195; with reflex housing, LC, \$345

300mm f/4.5 Actinar. Aetna-Optix, Japan. OP, \$199.50

300mm f/4.5 Tele-Athenar. Century, U.S.A. For all 35mm single-lens reflex cameras, \$159.50

300mm f/4.5 Tele-Megor. Hugo Meyer, Germany. Preset diaphragm, EX-PK-TR, \$199.50

300mm f/4 Pan-Tele-Kilar Duo-Range. Kilfitt, Germany. Preset diaphragm, basic lens, \$429.50; adapters for EX-PC-TR, \$15; LC (uncoupled) \$15; AL-PK-RF, \$24.50; Visoflex II, \$15; heavy duty flanges for Kilfittflex and Kilarscope reflex housings \$16.50; AL-EX-HA-PC-PK-TR, \$24.50

300mm f/4 Takumar. Asahi, Japan. Preset diaphragm, AH-PC, \$279.50

300mm f/3.5 Telagon. Tewe, Germany. Preset diaphragm, AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$355

300mm f/3.5 TV Fernlinse. Telagon, Germany. EX-TR, \$360

300mm f/2.8 Topcor. Tokyo Optical Co., Japan. Preset diaphragm, TR-EX, \$1125

325mm f/8 Holm & Jamer. Holm & Jamer, U.S.A. For all interchangeable lens single-lens reflexes, \$12.50

350mm f/4.5 Nikkor. Nippon Kogaku, Japan. Semi-automatic diaphragm, short mount (for Nikon reflex housing), \$398; adapter for NR, \$29.95; BO, price to be announced

360mm f/5.5 Tele-Xenar. Schneider, Germany. Preset diaphragm, AL, \$209; EX-PC-PK-TR, \$189.50

385mm f/4.5 Tele-Athenar. Century, U.S.A. For all single-lens reflex cameras, \$229.50

400mm f/7.5 Astronar. Encino Engineering, U.S.A. EX-PC-PK-TR, also in mount for Accura Reflex Housing, \$59.50

400mm f/7.5 Tamron. Photographic Importing and Distributing Corp. EX-PC-TR-NR-MR-CF, interchangeable adapters, \$69.95

400mm f/5.6 Fernobjektiv. Novoflex, Germany. With reflex housing, LC, \$266; CX-NI, \$262.50

400mm f/5.6 Fernobjektiv Follow Focus. Novoflex, Germany. EX-PC-PK-AL-TR, \$299.50

400mm f/5.6 Spectra Tele-Coligon. Aetna-Optix, Japan. Preset diaphragm, EX-TR, \$237.50

(Continued on page 130)



WHAT CAN'T YOU TAKE WITH POLAROID?

THE ANSWER to the above question is found in a magnificent new book, *Polaroid Portfolio #1*, by MODERN's Consulting Editor John Wolbarst. Ranging the picture scene from the sublimity of pretty girls to the seriousness of microphotographs of the human nervous system, this collection of photographs demonstrates that the Polaroid Land cameras and film materials have now come of age.

This book is unique in the picture book field, both in the collection of pictures and in the way they were gathered together. In the past, books have been published which were collections of photographs taken with specific cameras, but usually these books have appeared after the cameras were used by professional and amateurs for many

◁ Horst G. L. Lomont used 4 x 5 Polaroid sheet film, Linhof camera, and electronic flash for this charming portrait.

Milton J. Schwartz took 3X life-size profile of this great horned owl in bright sunlight against dark background. Graflex camera, 4 x 5 sheet film were used. ▷





Ansel Adams used the standard roll film camera for stunning seascape taken off shore in northern California area.

POLAROID (cont.)

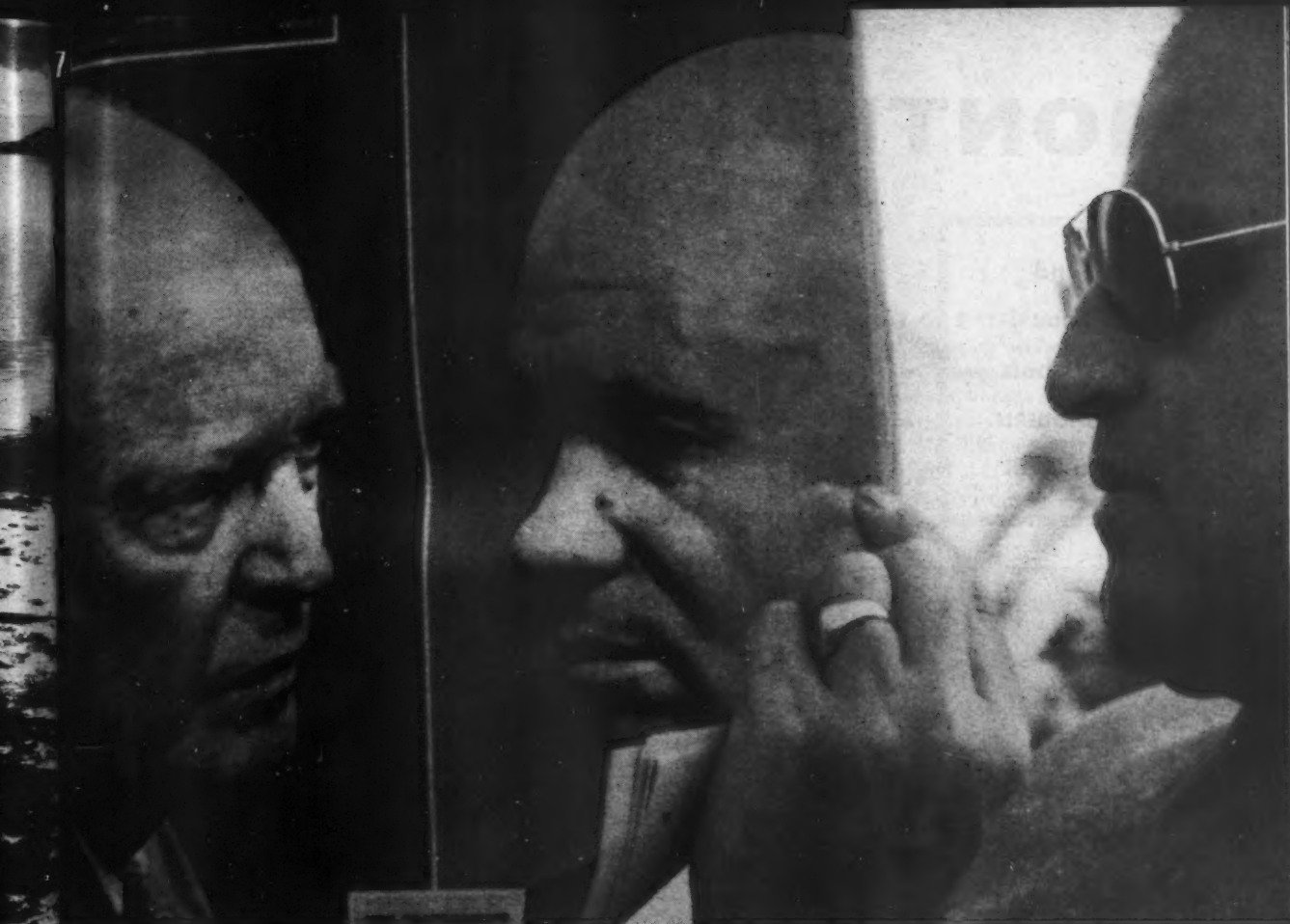
years. The only problem was choosing from a plethora of riches. At the time Wolbarst started on this project, in 1955, only 350,000 Polaroid Land cameras were in use (now there are estimated to be 2,000,000) and the 4 x 5 sheet film and holder (introduced in 1959) are even now relatively new tools, used by a limited number of professionals and amateurs.

Instead of going to the usual picture sources—photographic agencies, libraries, picture news services, etc.—editor Wolbarst had to seek and find individual photographers, who had taken or could take first-class Polaroid pictures. He talked amateurs and professionals into taking the camera with them on vacations and assignments. He asked professionals to save their “test prints.” (Many had been using the Polaroid system as a check for composition, lighting and exposure, and were throwing away the originals after their checks were made.) Two contests conducted by MODERN PHOTOGRAPHY turned up several good pictures. The Polaroid Copy Service alerted him to the work of good amateurs and he followed them up. He hounded the people who were using Polaroid materials for special purposes in research and science. And, finally, from

this mass of hard-sought material, he chose the 165 pictures, reproduced beautifully in sheet-fed gravure, which make up *Polaroid Portfolio* #1.

Perhaps the most exciting section in the book is “Science,” for here you will see some extraordinary pictures. Milton J. Schwartz produced a 12-picture sequence showing a tiny (3/16-in.) spittle bug building his house. Michael Videtta’s dragonfly photo, *right*, is from this chapter. The famous Emil Schulthess working with Heinrich Kornmann eschewed his 35mm camera, long lenses and landscapes for striking photomicrographs of fabric and a hummingbird’s wing. Dr. Roman Vishniac contributed a 1200X photomicrograph of the pattern of a chemical reaction. Dr. Harold Edgerton caught a hummingbird on the wing, about to stop to feed. These pictures would be eye-stoppers in any collection of fine photographs, regardless of the camera or material used.

But don’t let the above lead you astray. There is more familiar subject matter. And the amateur, who uses most of the Polaroid equipment sold, gets a full share of glory. More than half the photographs in the book were made by amateurs, (Continued on page 122)



Leonard Balish made N. M. Grossman part of a "Big 3" meeting on beach at Westport, Conn. Standard camera.

Michael Videtta saw dragonfly at rest, shot with standard roll film camera and close-up lenses in daylight.



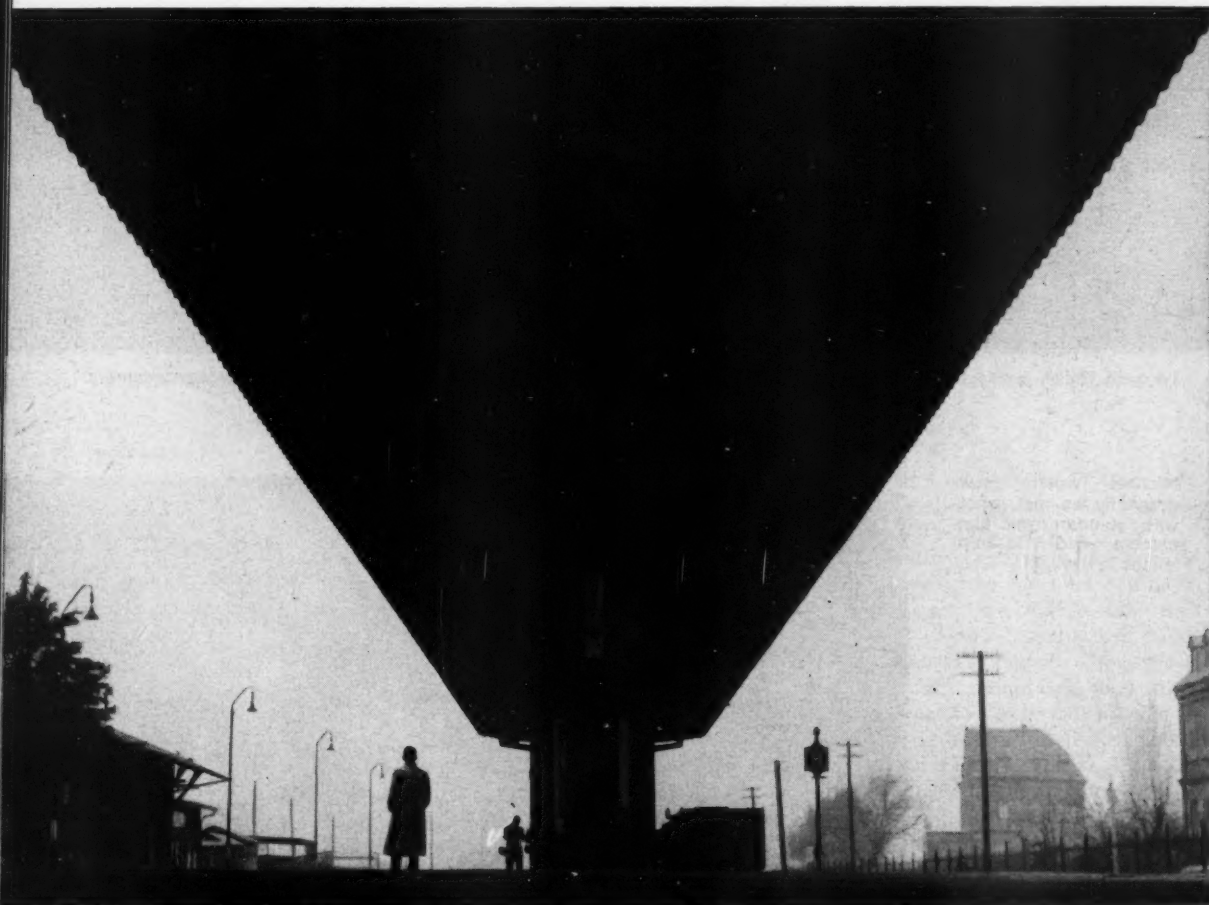
MONTHLY CONTEST

Send
Your
Best Shots
To MODERN.
Win \$25!

"When shall I press the shutter release?"

IT ALL DEPENDS on the subject, of course. For a candid, you may wait for an attitude or expression. For a scenic, you may wait for someone to walk into the field of view. For any shot, you may wait till *you're* in the right position. Here are some varied examples of good timing.

Anyone may enter any number of black-and-white prints in MODERN's "Monthly Contest." Pictures must be 4 x 5 or larger. Polaroid prints may be submitted in original size. Your name, address, and all technical data must appear on the back of each print. No entry blanks are required. *Please enclose a stamped (first-class postage), self-addressed envelope* if you want us to return pictures we're unable to use. Send them to Columns Editor, MODERN PHOTOGRAPHY, 33 W. 60 St., New York 23, N. Y.



STRONG DESIGN created by the station roof is neatly set off by the figure at left. Wolfgang Ohler, of Wiesbaden, Germany, spotted this unusual composition,

and got down low on platform to shoot with Leica IIIIf and 50mm f/3.5 Elmar lens. He exposed at f/5.6 and 1/50 sec. on Perutz Perpantic 17 film.



PLAY OF PATTERNS attracted Gottfried Kappelmeier, New York City, in an airy impression of boy-meets-girl: balloons and heads form the center of interest amid a flurry of branches. Leica M3, 135mm f/4.5 Hektor lens, f/5.6 and 1/250 on Super Anscochrome, copied on Agfa Isopan FF.



ACTION—in this case an unexpected horse laugh—was well caught by Elna Wilkinson, Fort Worth, Texas. She used a Rolleiflex, f/3.5 Tessar lens, and exposed at f/5.6 and 1/100 sec. on Plus-X Pan film.

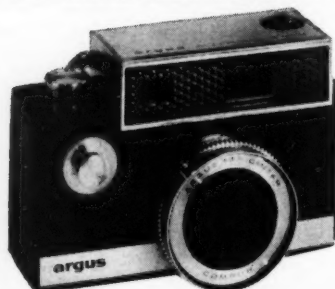
EXPRESSION, as well as position of head, made this finely composed shot of a bass player. Norman Trigg, Brooklyn, N. Y., used an Exakta 66, 180mm f/3.5 Primotar lens, and exposed at f/4 and 1/250 sec. on Verichrome Pan.

MODERN TESTS

NEWEST CAMERAS • LATEST FILMS • IMPORTANT ACCESSORIES

MODERN PHOTOGRAPHY'S exclusive monthly equipment report section devoted to informative, unbiased field tests of equipment submitted to and passed as acceptable by our technical department.

ARGUS ELECTRIC EYE 35 WITH RANGEFINDER



Manufacturer's Specifications: Argus Autronic 35 electric eye 35mm camera. Lens: 50mm f/3.5 Cinar. Shutter: Compur, with speeds from 1/30 to 1/500 sec., plus B, and special flash sync. **Other features:** Combination range-viewfinder; built-in exposure meter coupled to lens diaphragm for automatic aperture setting (for films with E.I. 10 to 200); rapid film advance and shutter-cocking lever; double exposure prevention with provision for intentional double exposure; flash exposure setting system without guide numbers. Price: \$79.95; with folding flashgun and leather case, \$99.95. **Manufacturer:** Argus Cameras Inc., 405 Fourth St., Ann Arbor, Mich.

Argus has revolutionized its familiar C3 camera which, like the Model A Ford, was designed many

years ago but still keeps going and going—and which its owners still swear by. The Autronic has roughly the same shape and the same lens—but beyond that, the whole works has been redesigned to give maximum automation with maximum flexibility.

Incidental improvements include: rapid film advance and shutter-cocking lever; double exposure prevention; larger, easy-to-turn focusing wheel, in the same position as on the old C3 but now geared internally to the lens mount; larger, easy-to-press shutter release in the middle of the focusing wheel; recessed rewind crank on top of the camera body; and a back that opens downwards instead of sideways, with an easy-to-operate catch. Major improvements are: the combined range-viewfinder; and, of course, the automatic electric eye, which operates in conjunction with a simplified shutter-speed system.

Except for 1/500 sec., the speeds are not indicated conventionally: the slowest setting is marked "Flash" (1/30 sec.); then comes an area marked "Scene" (from about 1/50 to 1/80 sec.), and an area marked "Action" (from 1/125 to 1/250 sec.). For automatic shooting, you merely pick a setting appropriate to your subject, and then look through the viewfinder, where a small needle shows whether the light is suitable for exposure. If the light is too dim or too strong, you adjust the shutter speed.

The focusing wheel plays an important role in shooting with flash, when apertures have to be set manually. Instead of distances, the focusing wheel is calibrated in numbers from 1 to 9—and the aperture numbers are simplified to correspond with these. When using Kodachrome Daylight with M5B or M25B flashbulbs, the number indicated on the focusing wheel after you've focused on your subject is the one to be set on the aperture ring for correct exposure.

There are simple adjustments for other types of film and bulbs.

We found the Argus easy to handle and operate. Loading is simple—the take-up spool has a sprocket claw for gripping the film leader firmly. The back is opened by a catch to the left of the film advance lever—so make sure that your thumb doesn't roam in the excitement of shooting. Also, when using the carrying case, make sure that you keep the flap open by fastening the snaps provided, to avoid any danger of its covering the lens.

The rangefinder image is large and reasonably clear, but the viewfinder is a little awkward for the glasses-wearer, who cannot easily see the frame.

We found that the electric eye gave amazingly good exposures in varied outdoor lighting conditions, with color as well as black-and-white. Lens definition was more than adequate for most amateur shooting conditions.

All in all, an admirable camera for amateurs who want good quality snapshots with a minimum of fuss and calculation.—W.H.J.

COUPLED METER ON BEAU LIGHTOMATIC



Manufacturer's Specifications: Beau Lightomatic 35mm range-finder camera. Lens: 45mm f/1.9 Beauty-S. Shutter: Copal-SV, with speeds from 1 to 1/500 sec., plus B, self timer, and MX sync. **Other features:** LVS cross-coupling system for E.I. 6 to 1600; built-in coupled exposure meter; automatic zero-resetting frame counter; bright-line frame range-viewfinder with automatic parallax correction; rapid rewind. Price: \$99.95 (plus carrying case, \$12.50). **Importer:** Camera Specialty Co. Inc., 705 Bronx River Rd., Bronxville, N. Y.

Here is a moderate-priced camera that offers a fast lens and a coupled exposure meter.

The exposure system works as follows: You set the film speed ring (on the lens mount), and then, with the camera aimed at your subject, line up a needle with a marker—these are in a window on top of the camera—by adjusting the aperture ring, the shut-

ter-speed ring, or both. The two rings are cross-coupled, but can be disconnected by a slight pressure on the aperture ring.

We tested the meter and found that it was sensitive and accurate in all except the lowest light conditions. Settings were reliable down to $f/1.9$ at $1/60$ sec.

Our tests showed that lens sharpness was good at $f/1.9$, with slight corner fall-off and vignetting (usually the case with lenses of this type). When the lens was stopped down, vignetting disappeared and sharpness improved to very good between $f/5.6$ and $f/8$, and remained very good down to $f/22$.

In using the camera, we found the bright-line frame in the viewfinder was visible even in low light—and all of it could be seen by this glasses-wearer. Indoors, we found that brilliant light sources cause reflections in the viewfinder. The rangefinder image compares in brightness with other cameras in the same price range. The focusing ring needs to be turned through only 90° to focus from 2.7 ft. to infinity.

When the film advance lever is pushed in flush with the camera back, the shutter release is locked—a useful safeguard against accidental exposures. To unlock it, pull the lever out about $\frac{1}{4}$ in.—the position to which the lever returns after the film is advanced. The automatic zero-resetting frame counter also locks the film advance on reaching zero.

The interior of the Lightomatic is very well finished, and the take-up spool, with its wide slit and catch for the first sprocket hole, facilitates loading. The rewind button stays in by itself during rewinding, and the folding rewind crank is conveniently large and easy to handle.—W.H.J.

35, 135MM AUTOMATICS FOR MINOLTA REFLEX

Manufacturer's Specifications: 35mm $f/2.8$ Auto Rokkor lens for Minolta SR-2 Reflex. **Features:** Apertures to $f/22$, focus approx. 9 in. to infinity, completely automatic diaphragm. **Price:** \$119.50. **Importer:** Minolta Cameras, 150 Broadway, New York 38, N. Y.

Manufacturer's Specifications: 135mm $f/2.8$ Auto Rokkor lens for Minolta SR-2 Reflex. **Features:** Apertures to $f/22$, focus approx. 5 ft. to infinity, completely automatic diaphragm. **Price:** \$139.50. **Importer:** Minolta Cameras, 150 Broadway, New York 38, N. Y.

Minolta, with an eye on establishing the simplest interchangeable lens sys-

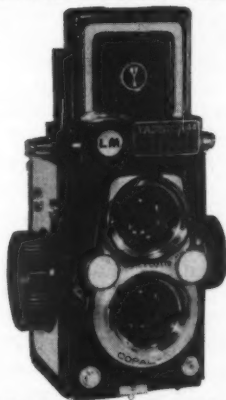
tem possible, has brought out its former preset 135mm lens in automatic aperture form and introduced a brand new wide-angle lens. Both lenses have the same front lens diameters and accept the same accessory filters and accessories as the 58mm $f/1.8$.

The 135mm Auto Rokkor is quite compact, only 4 in. long. There seems to be little to differentiate it optically from the preset 135mm lens. Results from tests on both were quite similar. Definition was acceptable at full aperture and very good at the best aperture, between $f/5.6$ and $f/8$. Definition held to $f/22$ with little loss in sharpness. There was no noticeable flare or vignetting at any aperture.

The 35mm $f/2.8$ Auto Rokkor is quite different in construction from the few pilot 35mm lenses we examined about a year ago. At that time, Minolta decided not to manufacture the lens until it could be improved. While we did feel the former lens was acceptable, there's no doubt that the new 35mm $f/2.8$ is superior. It is of reverse telephoto construction with a large front element. Definition at $f/2.8$ was good with really excellent sharpness between $f/5.6$ and $f/8$. Definition held to $f/22$. Unlike many wide-angle lenses we've seen, there was no noticeable vignetting at any aperture.

The automatic diaphragms of both lenses worked efficiently at all times. Prices include leather cases.—H.K.

YASHICA 44LM HAS BUILT-IN LIGHT METER



Manufacturer's Specifications: Yashica 44LM 4 x 4 twin-lens reflex camera with built-in exposure meter. **Lens:** 60mm $f/3.5$ Yashinon taking and viewing. **Shutter:** Copal SV, speeds from 1 to $1/500$ sec., plus B, MX sync, self timer. **Other features:** Film speed scale from E.I. 6 to 400; accessory shoe; sports-finder. **Price:** \$59.95. **Importer:** Yashica Inc., 234 Fifth Ave., New York 1, N. Y.

Several years ago the Yashica 44 joined the ranks of the small 127-size twin-lens reflex cameras, the answer to photographers who want to take super slides with reflex cameras without resorting to special adapters. Now comes the Yashica 44LM, sporting several changes over the old model, as well as a small exposure meter mounted above the lens.

The left-hand focusing knob has been retained, but the film advance crank has been replaced by a semi-automatic knob. It has an automatic stop, but to start the knob turning, you must push a button in the center.

The film is transported in the normal bottom-to-top direction (unlike the 44). You push two buttons, one on the camera's side and the film release button. This causes the number "1" to pop into a window on the right side of the camera body, and the film counter is automatically set.

The light meter's scale, visible from the top, is calibrated from number 1 to 10. Take a reading and set it on a scale (1 to 10) on the outer rim of the film advance knob. Then it's a simple matter to get the correct f-number/shutter-speed combinations from the two scales on the other side of the knob.

Our tests showed the meter to be accurate for all but low-light situations. For example, using a film with E.I. 400, a meter reading calling for a setting slower than $f/4$ at $1/60$ would indicate too little light for a reliable reading.

The shutter must be cocked separately for each exposure. There is no double exposure prevention device.

The Yashica 44LM is compact, yet hefty enough for comfortable, steady shooting. The Fresnel focusing screen is bright, even to the corners. Although the lines of the Fresnel lens are a little disconcerting, the clear spot in the middle of the screen, and the magnifier, make critical focusing an easy matter.

In testing the lens, we found it to be good wide open, with slight fall-off in sharpness at the edges (usually the case with lenses of this type). Sharpness is very good at its best aperture— $f/5.6$ to $f/8$ —and remains so when stopped down further.—D.L.M.

CANON ZOOM 8 HAS THROUGH-LENS FOCUS

Manufacturer's Specifications: Canon Zoom 8, 8mm movie camera. **Lens:** Canon $f/1.4$ zoom lens with variable focal lengths from 10 to 40mm. **Fps:** 8, 12, 16, 24, 32, 48, 64, and single-frame. **Viewfinder:**

(Continued on page 104)

TITLES THAT STOP 'EM

NO MATTER how tricky or interesting you make the words of an opening title, it's going to be as dull as skimmed milk if you just spell out the words on a black or colored background that dominates the screen. One of the best remedies for this situation is the title which is an inherent part of the movie itself. At *right* are three ideas that offer just that and can help you escape from the title that looks like an afterthought. But if you find, after you've shot the movie, that you just have to use an added title, we've listed a fourth idea to remove the static quality of the lettered, plain background title.

Look at the zoom title on live footage, illustrated on *this page*. The first scene opens with the title so small that it can barely be read. As the camera zooms in, the title grows until it dominates the screen. The professional might shoot the scene and the title separately and then join them in a third print made in an optical printer. However, the amateur can make this kind of title in his camera at the cost of only a few feet of film and about 15 minutes of his time.

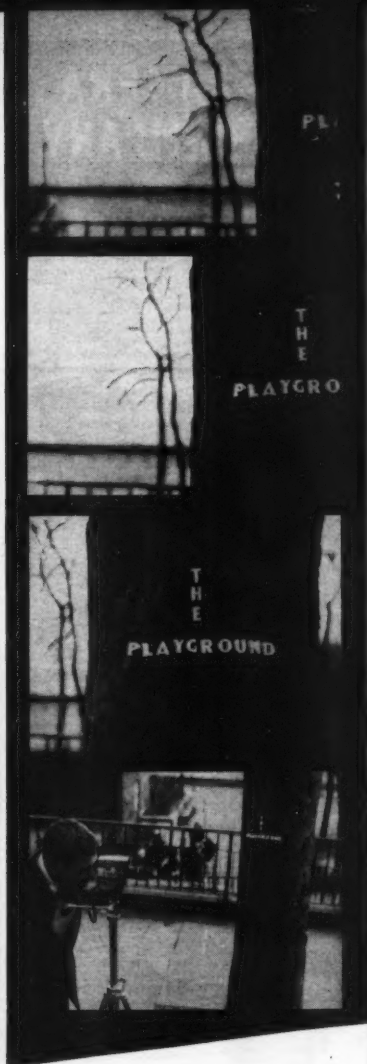
But knowing how to achieve special effects with your movie camera isn't quite enough. Quite a few amateur titles we've seen far outdo the professional variety—in the camera technique department, anyway. But they fail simply because the title—while a real stopper—has nothing to do with the film. The audience expects one thing—a serious film perhaps—and ends up seeing another—a comedy. The title should match the film. Good editing doesn't stop once the major portion of the film is completed. The mood of the title should blend with the mood, color, and pace of the movie itself. Otherwise, your first scene will leave your audience completely in the dark.

An animation title (*opposite, right*) might go well with a travel or birthday party film, for example. Or you may want to use the chalk writing on a wall idea (*opposite, center*) for a documentary.

In designing the title some attention should be given to lettering style. Frankly, we don't care for the flat, white lettering that many amateurs use. Art and photo shops can supply you with a variety of type styles and sizes. Flat lettering has its place, as in the zoom title, but the three-dimensional letters made by Mitten's Display Letters, Redland, Calif., and Hernard Manufacturing Co. Inc., Yonkers, N. Y., offer greater variety and versatility. They can be colored to suit backgrounds and are available in both small and capital letters.—M.A.M.



ZOOM IT: Here's one title that can be shot right on vacation. Take along some fairly large letters—those about 3 in. high are good. Stick them on a window overlooking an interesting scene that relates to your film, using two-sided adhesive. Focus with your zoom lens in tele position and then rack back to wide-angle to include most of the window. Take your exposure reading for the outside scene with a reflected light meter. This way, lettering will register black and even contrast with the sky. Start shooting. Then zoom slowly until title is large enough to be read easily. No zoom lens? Use normal lens, place camera and tripod on scatter rug, and have someone draw it smoothly toward window. Check finder for framing.

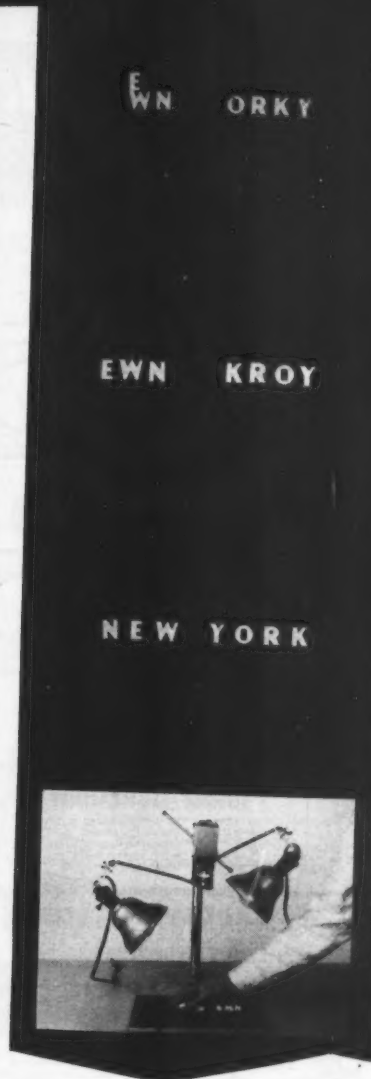


SWITCH IT: A title where no one expects it can be effective. Place title on tree—using letters with pins in them (Mitten's—see text—has them). Start shooting overall scene, pan slowly toward title. Other titles or credits can be placed below and pan is continued to show them. Another way might be not to use natural backgrounds—instead, actual title boards are spotted around the scene. Expose for scene when shooting Kodachrome or Ansco Moviechrome. White letters will show up well even in shadow areas. While titles can be shot with hand-held camera, a tripod provides better control during panning. Practice the complete shot before actually exposing film. Remember, pan slowly enough for people to read title easily.



SCRIBBLE IT: Sidewalks, brick walls, fences and any surface that will take chalk writing make good outdoor title backgrounds. Hearts, above, suggest wedding theme, but same idea could be used as title for documentary film. Write all titles and credits before starting to shoot and cut from one to the other. While title can be made with hand-held camera, any camera movement makes titles hard to read, so use a tripod when possible. The idea can be varied in several ways. One is to draw hopscotch boxes and write in titles instead of numbers. Film a medium shot of child jumping, then cut to close-up of box as she lands.

Use light-colored chalk and expose for background so that lettering stands out strongly.



ANIMATE IT: Here's an easy way to make a humorous animated title that fits in with travel or birthday films. Line up title, but with words scrambled. Shoot a few seconds and stop. Now, take one letter and move it slightly toward correct position. Shoot a single frame. Move the letter slightly again and shoot another single frame. Continue until the moving letter touches the one occupying its correct position. Now, move both letters until the first letter is in place, and repeat cycle with displaced letter. Continue until title is spelled correctly. When projected, letters appear to push each other around in continuous movement. Speed of movement is controlled by the number of single frames employed for each complete action.

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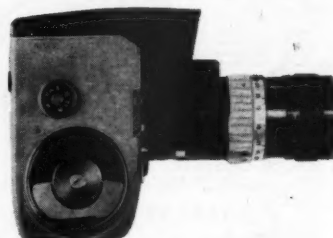
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MODERN TESTS

(Continued from page 99)

Through-the-lens focusing (split-image rangefinder) and viewing. Other features: Semi-automatic electric eye (E.I. 10-160); drop-in film loading; self-setting footage counter; 6-ft. film run; ratchet wind; cable release socket; and eyepiece adjustment. Price: \$239.95. Importer: Scopis Inc., 404 Fourth Ave., New York 16, N. Y.



The Canon Zoom 8 is the most ambitious design among the current crop of 8mm electric eye zoom lens cameras. Its lens is the fastest yet, and it offers conveniences aimed at serious or discriminating movie makers.

The prism used for the through-the-lens focusing system is placed ahead of the diaphragm; thus, no light is lost in the viewfinder when the lens aperture is closed down. Viewing remains bright at all times.

The split-image rangefinder is bright enough for accurate focusing even in low light.

In our shooting tests, the lens proved acceptably sharp at most openings. However, some overall image softness could be noted at f/1.4. This cleared up appreciably at f/2 and was almost nonexistent at f/2.8. Sharpest opening was about f/8. The helical zooming action was smooth throughout the focal-length range. However, we would have liked a fingertip lever on the knurled ring.

During our tests we found the motor so quiet that we had difficulty hearing it run, even in only moderately noisy streets.—M.A.M.

TOO HOT TO HANDLE

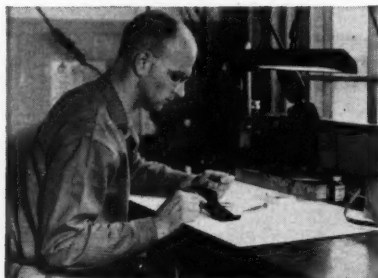
(Continued from page 61)

tremely high for the price. It would be foolish to expect this camera to be the complete equal of similar-looking machines costing two or three times as much. We would not recommend the Nicca 35 Type 3 as a good buy in most cases since spare parts needed for repairs are not readily available. It may look like a Leica IIIf outside, but inside. . . . The camera itself is in no way up to the features and quality of the Yashica YF.

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the MOVIE MAKER

by MYRON A. MATZKIN

Not shooting titles for your films? Then you may be doing them a major injustice.



The story in this month's movie section is on titling (see page 100). And if you have any doubt about the value of titling your movies, just try this test.

Show the same film with and without an opening title. The title need be no more than a few words germane to the movie. Just arrange the words on a contrasting background and shoot a few feet.

Which gets audience attention faster—the film with a title or without one? It's almost certain that the titled film will have your audience's attention by the time the first scene opens. The first scene in most untitled films will probably have to compete with everything from unfinished conversations to a last-minute rush for the refrigerator.

And here lies the greatest value of titling. In a word—it's showmanship. Let's admit it—the five or six words of an opening title won't tell you much about the film. Just glance at some of the advertisements in your newspaper's movie page. The titles tantalize, awaken curiosity, or shock—but they don't tell you what the story is all about. They persuade you to go to the movies—their primary function.

If you want to improve your titles, take a look at those used by the pros. The first thing that strikes you about titles such as *The Bridge on the River Kwai*, *The Magician*, or *Our Man in Havana* is their brevity. Secondly, the choice of words piques the imagination. Frankly, I think those are the two basic rules for good titles. People go to the movies to see action—not read. Avoid words that may be difficult to pronounce—even to oneself. Once you've got audience attention, get down to the main topic—the film itself. I usually shoot titles longer than I think necessary and cut to what I feel provides the audience with enough time to read—as a rough guide, a minimum of five seconds.

I rather like the television custom of placing all credits at the end of a film or performance. Thus, the names of the director, editor, cameraman and so on don't break the continuity between

initial awakening of interest—the title—and the film.

In most modern professional films, about the only titles you see are those placed at the beginning of the movie. However, amateurs have a problem professionals do not. The professional film maker can use sound to make a transition from one place to another or to explain an action not fully understandable from the image itself. Subtitles between scenes are rarely, if ever, used in sound motion pictures. However, many amateurs must rely on subtitles interjected between shots—particularly in travel films—to properly orient the audience.

There are no rules here—just good sense. The subtitle, to be effective, must be indispensable. Use it only where a scene or shot would be unintelligible without a subtitle. Write subtitles to the point and keep screen time short.

You might use a title to explain, for example, a transition from a scene in the morning to one at night. Fade out the first scene, cut in a title stating the hour of the evening shot, and fade in the next scene. However, a scene change from a small town to New York might not need a subtitle. A shot of, say, the New York skyline would be as explicit as a title.

Keep them short

Above all, avoid the long, screen-filling explanation that takes minutes to read and ruins the continuity of the movie. Don't start relying on subtitles to inject continuity that should be provided by good editing and shooting. The end result in its worst stages will be constant interruptions by titles explaining missing footage. It's almost worse than the movie maker who uses no titles at all but constantly tells the audience why he wasn't able to shoot the footage that belonged at a particular point in the film.

To keep your subtitles as short as possible, make a rough draft of what you want to say, and then concentrate on reducing this draft to the fewest possible words.

Should you have an "End" title? Yes, by all means. The "End" title is a final punctuation. That, honestly, is its only justification—but a sufficient one. Unless you plan to place the "End" on live film, you may find it time-saving to shoot about 10 ft. at one time, cutting the film and using it as needed for several movies. The title can be extremely brief—two or three seconds at the most.—THE END

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BATTERIES

(Continued from page 80)

the end of its charge, giving less light and requiring much longer times to build up to a full charge (increased recycling times). In older electronic flash units made before the transistorized monitoring systems were designed to cut off the power between flashes, the cells lost power if the units were left on and not fired immediately. In one hour of "on" time, the equivalent power of 60 flashes could be drained even if no pictures were made.

To solve these various problems several manufacturers have produced battery rejuvenating units. These units do allow batteries to be rejuvenated for a limited number of flashes but they do not recharge the battery. D-cells are considered by chemists to be irreversible. In other words, alteration in the ingredients during battery use produces changes which cannot be reversed by any practical means. However, by applying a small amount of reverse current—i.e., forcing electrons back into the negative electrode—the depolarizing (elimination of the hydrogen shielding the carbon electrode) can be made more complete, thus extending the life of the D-cell considerably.

However, the cells can be rejuvenated only under certain conditions. The battery or cell must be recharged soon after use. The voltage in each cell must not have been reduced under 1 volt (a full cell charge is 1.5 volts) and the charging rate must continue for from 12 to 16 hours. Since rejuvenating reduces shelf life, the rejuvenated cells must be used immediately.

Improving on the D-cell

A new type of D-cell, the alkaline energizer (see fig., page 78), may solve the short life problem of the D-cell. The energizer gets its name from the electrolyte, which instead of being in an acid state as in many D-cells is an alkaline—potassium hydroxide. The electrodes, as before, are zinc and carbon. Although these cells are higher in price than the D-cells and are not rechargeable, they last much longer, have more energy and capacity, and don't fall off in power as they near the end of their charge. They are also relatively unaffected by extreme temperature.

Another excellent primary or non-rechargeable battery now in use is the mercury cell (see fig., page 78). From a chemical standpoint, it's much like the alkaline energizers, with potassium hydroxide as the electrolyte. The electrodes are zinc and mercuric oxide. The mercury cell has a number of advantages. For its size and weight, it delivers

(Continued on page 112)

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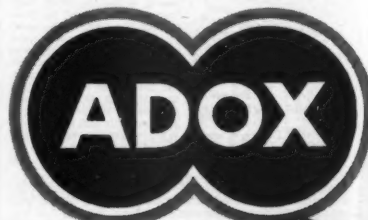
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BATTERIES

(Continued from page 110)

a high electrical output. The output voltage is unaffected by low temperatures that cut other batteries' efficiency drastically. Voltage is quite constant under heavy loads and shelf life of the battery is extremely long. Unfortunately, these batteries are too expensive for practical purposes as far as electronic flash is concerned. However, they are finding some use in powering the cells of special purpose exposure meters.

Small amateur electronic flash units until recently were designed to use 1.5-volt, single-cell D-size batteries. Since a rather high voltage is necessary for an electronic flash discharge, a rather comprehensive electrical circuit must be used to build up and store the current from the 1.5 volt D-cells. It takes such a flash unit about 10 seconds between flashes to build and store the necessary energy. If a 240- to 510-volt battery, which is actually no more than many 1.5-volt cells linked together, is used instead of a D-cell, much of the unit's circuitry can be eliminated and the time between flashes cut to about 4 seconds (see fig., page 80). In addition, the idling current is very low, so there is practically no drain on the batteries while the unit is "on" but not firing. Upwards of 500 flashes are possible on one set of batteries.

The characteristics of the high-voltage dry cell make it an obvious choice for professional photographers who need a large number of flashes without battery change and who must keep a unit idling, on the ready, for hours at a time.

Good but expensive

The fly in the ointment for most amateurs is the cost of the high-voltage battery itself. Since each battery is actually composed of many individual 1.5-volt cells, a high-voltage battery must be relatively expensive—as it is. One 510-volt for a small electronic flash unit costs about \$15 and its life is but one year.

Since purchasing a comparatively expensive set of batteries and throwing them away after a limited number of flashes is uneconomical, it's not surprising that portable electronic flash manufacturers should try to find a substitute battery which could be used over and over again. Their first try produced rather heavy wet-cell electronic flash units, powered by batteries much like those used in cars (see fig., page 80). The two electrodes are made of lead compounds while the electrolyte is sulfuric acid. As the battery discharges, the two terminals are slowly converted to lead sulfate by reaction with the acid.

(Continued on page 116)

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Contina IIA, F2.8...42.50
Contessa, F2.8 Meter...44.50

SINGLE LENS REFLEX SALE

Alpa 5, F1.9 Xenon...119.50
Praktica, F2.9 lens...29.50
Rexar P3...49.50
Rival Reflex, F2 lens...48.50
Contax 2, F2.8...79.50
Exakta I, F3.5 lens...39.50
Exakta LV3, F3.5...79.50
Exakta Vx, F2 Biotar...99.50
Hexanon, F1.9...89.50
Primolux...89.50
Soligor "66", F3.5...49.50
Hasselblad 1600...189.50

TWIN LENS REFLEX SALE

Rolleicord 1, F4.5...19.50
Rolleicord II, F3.5...19.50
Rolleiflex 424...89.50
Rolleiflex Auto F3.5...46.50
Rolleiflex MX, F3.5...79.50
Rolleiflex LV3, F3.5...79.50
Rolleiflex 3.8D F2.8...139.50
Minolta Autocord...79.50
Yashicamat, F3.5 lens...44.50
Rodeca IA, F3.5 lens...34.50
Rodeca IIA, F3.5 lens...42.50
Sawyer Mark IV, F2.8...47.50

NEW MODEL

CONTAFLEX RAPID

\$89.50 your Contaflex III
\$79.50 your Contaflex IV
\$49.50 your Retina Reflex
\$69.50 your Retina IIIC
\$19.50 your Exakta III
\$99.50 your Argus C3
\$49.50 your Argus IIC

EXAKTA IIA

43.95

Plus your old Exakta Vx (Single Flash Post Model) Body for Body

\$9.50 your Exakta Vx
\$9.50 your Exakta Vx
\$9.50 your Pentax
\$99.50 your Praktica FX
\$19.50 your Exakta I or II
\$29.50 your Exa
\$9.50 your Retina Reflex

VOIGTLANDER BESSAMATIC

99.50

Plus your Contaflex IV

\$114.50 your Contaflex III
\$49.50 your Retina Reflex
\$99.50 your Asahi Pentax

AUTOMATIC BRONICA

169.50

Plus your Hasselblad 500C

\$319.50 your Hasselblad 500C
\$29.50 your Exakta 66
\$139.50 your Rolleiflex 3.8D

BESELER TOPCON

PRECISION AUTOMATIC 35mm SINGLE LENS REFLEX CAMERA

\$99.50 your Exakta IIA
\$99.50 your Exakta Vx
\$99.50 your Exakta IIC
\$99.50 your Nikon SP

RETINA REFLEX 5

64.50

Plus your Retina Reflex

\$99.50 your Retina IIC
\$99.50 your Contaflex IV
\$99.50 your Retina IIB
\$139.50 your Argus
\$99.50 your Asahi Pentax

JUST ARRIVED!

50mm F1.4 85-250mm

Auto Nikkor Zoom

TRADE YOUR LENSES

MIRANDA "C" AUTO

\$79.50 your Exakta Vx
\$99.50 your Pentax
\$99.50 your Praktica FX
\$79.50 your Retina Reflex
\$144.50 your Argus C3
\$139.50 your Asahi Pentax
\$99.50 your Bessamatic
\$99.50 your Nikon SP

JUST ARRIVED!

GRAFLEX ELECTRIC

The Only 35mm Battery Operated Camera... WITH 55mm F1.9 STEINHEIL QUINON CTD. LENS

TRADE YOUR CAMERA

Save
25% to 75% OFF LIST

WALL ST. Camera Exch.

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80 WALL STREET

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BRAND NEW DISCONTINUED

50% OFF
CANON 8mm
TWIN LENS TURRET
MOVIE CAMERA

List \$139.00

SALE
69.50

With 13mm F1.8
Canon Lens

Speeds 16-64 FPS
Single Frame Exposure
Automatic Parallax Correction
Through the Lens Focusing
Many other exclusive features

CANON MOVIE LENSES

LIST	SALE
5mm F1.8	\$89.50 \$44.50
7.5mm F1.8	\$50.00 \$25.00
13mm F1.8	\$50.00 \$25.00
20mm F1.8	\$50.00 \$25.00
25mm F1.8	\$50.00 \$25.00
35mm F1.8	\$77.00 \$49.50
50mm F1.8	\$80.00 \$50.00

KODAK CINE
AUTO TURRET

With 3
F1.9 Lenses

SALE
84.50

KODAK ZOOM 8
Automatic F1.9 Electric Eye

List \$119.00

SALE
98.50

IMM PROJECTORS

LIST	SALE
Model 1.0	\$40.95 \$34.95
Model 2.3	\$40.95 \$34.95
Model 3.0	\$40.95 \$34.95
Model 4.0	\$40.95 \$34.95
Model 5.0	\$40.95 \$34.95
Model 6.0	\$40.95 \$34.95
Model 7.0	\$40.95 \$34.95
Model 8.0	\$40.95 \$34.95
Model 9.0	\$40.95 \$34.95
Model 10.0	\$40.95 \$34.95

CLOSE-OUT SALE!
BRAND NEW DISCONTINUED
NIKKOR LENSES

For Leica, Canon, Nipca, etc.

LIST
PRICE

21mm F4	\$229.00 \$114.50
25mm F4	\$172.50 \$86.25
28mm F4	\$153.00 \$76.50
35mm F4	\$93.00 \$46.50
45mm F4	\$143.00 \$71.50
50mm F4	\$183.00 \$91.50
55mm F4	\$131.00 \$65.50
58mm F4	\$150.00 \$75.00
63mm F4	\$150.00 \$75.00
67mm F4	\$150.00 \$75.00
75mm F4	\$150.00 \$75.00
85mm F4	\$150.00 \$75.00
90mm F4	\$150.00 \$75.00
100mm F4	\$150.00 \$75.00
135mm F4	\$150.00 \$75.00
200mm F4	\$150.00 \$75.00

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
49.75

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
49.75

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
49.75

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
49.75

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

BRAND NEW DISCONTINUED

LENS RIOT SALE!
200mm F5.5
PRESET
TELE VOTAR

List \$79.50

SALE
37.50

180mm F5.5 Preset
Votar

200mm F5.5 Preset
Votar

250mm F5.5 Preset
Votar

300mm F5.5 Preset
Votar

350mm F5.5 Preset
Votar

400mm F5.5 Preset
Votar

135mm F2.8
SONNAGOR
Preset Telephoto Lens

List \$99.50

SALE
59.50

ASTRONAR
400mm F7.5

SALE
42.75

BRAND NEW
Designed and tested by missile
engineers, the ASTRONAR-400
boasts quality and workmanship
not seen in lenses at three
times the price. The ASTRO-
NAR-400 is a 3-element f/7.5
true telephoto lens with 8x
image magnification and un-
usually high resolution... a
minimum of 1400 lines-per-
inch, guaranteed!

60 DAY FREE TRIAL
If not thoroughly pleased, re-
turn it for full credit against
any of the following 400mm

400mm F5.5 Tele Negor 109.75

400mm F5.5 Tele Votar 78.50

400mm F5.5 Tele 92.50

EXCLUSIVE!
50% OFF LIST
ON WORLD FAMOUS
Minicam ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
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Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

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Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
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ELECTRONIC FLASH

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Model 6.0	\$49.95
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Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
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ELECTRONIC FLASH

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Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
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Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
24.95

MINICAM ST-50
TRANSISTORIZED
ELECTRONIC FLASH

LIST
PRICE

Model 1.0	\$49.95
Model 2.3	\$49.95
Model 3.0	\$49.95
Model 4.0	\$49.95
Model 5.0	\$49.95
Model 6.0	\$49.95
Model 7.0	\$49.95
Model 8.0	\$49.95
Model 9.0	\$49.95
Model 10.0	\$49.95

SALE
24.95

BRAND NEW DISCONTINUED

CONTAFLEX III
OUTFIT

List \$209.00

SALE
124.50

HERE'S WHAT YOU GET:
• Contaflex III Camera
• 50mm F2.8 Zeiss Tessar
Automatic Lens
• Eye Level Pentaprism Finder
• Split-Image Rangefinder
• Filter Adapter - 2 Filters
• BC Flashgun & Leather Carrying Case
FREE! Wide Angle or Telephoto
Accessory Lens with Above Outfit

Contaflex IV Instead of
Contaflex III, Add..... 24.50

MIRANDA C
OUTFIT

List \$329.50

SALE
199.50

HERE'S WHAT YOU GET:
• Miranda C Camera
• Waist Level Finder
• Split-Image Rangefinder
• Leather Eveready Carrying Case
• 135mm F3.5 Soligor Tele Lens
• B.C. Flash Gun & Flashgun Bracket
• Leather Eveready Carrying Case
Penta Prism Finder instead of
waist level Finder, add..... 19.50

50mm F1.9 Auto Soligor Lens,
instead of F2.8 lens..... 39.50

***S.L.R. SALE**
(Single Lens Reflex)

ASAHI PENTAX K
AUTO LENS

With 55mm F1.8 TAKUMAR

SALE
157.50

BRAND NEW

Miranda with Prism &
50mm F2.8 Preset Lens..... 89.50

Edixa Reflex C with 50mm
F2.8 Auto Tessar Lens..... 129.50

Edixa Reflex C with 50mm
F2.2 Takumar..... 119.50

Edixa Reflex C with 50mm
F2.8 Steinheil..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

Edixa Reflex C with 50mm
F2.8 Auto Westernar..... 87.50

BRAND NEW LATEST 1960

RETINA REFLEX S Outfit
GENUINE "EK" RETINAS
With "EK" Serial Number and
Eastman Kodak Import Certificate

List \$242.95

SALE
167.50

HERE'S WHAT YOU GET:
• EK Retina Reflex S Camera
• Built-in Exposure Meter
• Eye Level Pentaprism Finder
• Split-Image Rangefinder
• 50mm F2.8 Schneider Xenar Lens
• Retina Lens Shade
• 3 Retina Screw-in Filters
• B.C. Folding Flash Gun
• Deluxe Leather Eveready Carrying Case

50mm F1.9 Schneider Xenon
Lens instead of F2.8 Xenar, add..... 29.50

RETINA IIIIS, F2.8
..... 99.50

Retina IIIIC, F2.8..... 129.50

35mm F2.8 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

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35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F4.5 W.A. (Reflex S)..... 48.50

35mm F

LORD

COLOR

ALL FILMS FACTORY FRESH • FULLY GUARANTEED May 1961 EXPIRATION DATE

DEPENDABLE COAST-TO-COAST FILM SERVICE!

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24-HOUR LAB SERVICE ON KODACHROME

35mm KODACHROME
WITH PROCESSING INCLUDED

ALL FILMS MOUNTED

	• DAYLIGHT OR TYPE F			
	3-ROLLS	10-ROLLS	20 exp.	36 exp.
KODACHROME (Same prices apply for Ektachrome and Anscochrome)	20 exp. 7.50	36 exp. 11.95	20 exp. 23.00	36 exp. 35.00
SUPER ANSCOCHROME	8.00	12.75	25.50	40.00
STEREO KODACHROME	15 pairs 9.00	28 pairs 15.00	15 pairs 27.00	28 pairs 45.00

• Please include 5¢ postage per roll



Take your
COLOR shots



Mail your film
to Lord



Receive your
film at home

Send check, money
order or cash with
films. Please do not
send your remittance
separately.

Minimum order: \$1.
Sorry, no C.O.D.'s.

Please include
postage, excess
is refunded.



**KODACHROME
MOVIE FILM**

With Processing Included!

DAY. OR TYPE A	3-ROLLS	10-ROLLS
8mm ROLL 25' Dbl.	8.95	28.00
16mm ROLL 100'	25.00	81.00
8mm ROLL 100' (For Bolex)	28.50	89.00
8mm Mag. 25' Dbl.	12.00	38.00
16mm Mag. 50'	18.00	58.00
16mm Anscochrome 100' Roll	26.25	85.00
16mm Super Anscochrome 100' Roll	29.00	95.00

• Please include 5¢ postage per roll

LOAD YOUR OWN AND SAVE!

**KODACHROME
Bulk MOVIE FILM**

With Processing Included!

8mm x 100'	9.95
Plus 4-empty daylight spools and cans (or on 100' day. spool for Bolex H8)	
8mm x 400'	39.00
Plus 16-empty 8mm daylight spools & cans (or 4 empty 100' day. spools for Bolex H8)	
16mm x 400'	32.00
Plus 4-empty 16mm x 100' day. spools & cans	

ALL FILMS ARE FROM
ORIGINAL SEALED
FACTORY FRESH BULK

LOAD YOUR OWN AND SAVE!
KODACHROME OR ANSCOCHROME
OR EKTACHROME
35mm Bulk **COLOR FILM**

WITH PROCESSING INCLUDED

28 Ft. To make (8)-20 exp. or (5)-36 exp.	16.95
50 Ft. To make (16)-20 exp. or (10)-36 exp.	32.00
100 Ft. To make (32)-20 exp. or (20)-36 exp.	60.00



**BULK
LOADER**
SPECIAL 4.95

**FREE! MAILING BAGS AND
EMPTY 35mm CARTRIDGES.**
Specify your preference for 20
exposures or 36 exposures.

NOW! BLACK & WHITE FILM & PROCESSING!

YOUR CHOICE OF EASTMAN KODAK TRI-X or PLUS-X ON THESE OFFERS

BY POPULAR DEMAND!



**8mm
Kodak
TRI-X**
HIGH SPEED ASA 200

PROCESSING INCLUDED

Ideal for shooting under
difficult light conditions!

8mm x 25' Dbl.
3-Rolls . . . 7.75
3-Mags . . . 9.00
100' for Bolex ea. 9.00

Also available in
Kodak PLUS-X (ASA 80)

8mm & 16mm BULK FILM

(Without Processing)

100 Ft. 200 Ft. 400 Ft.

4.50 8.50 16.00

PLUS-X or TRI-X

FREE!

8mm x 25'
spools and
cans

16mm x 100'
spools and cans

Specify preference.



**8mm or 16mm
Bulk Film Winder**

- Holds up to 400'
- Will load any camera spool
- Specify 8mm or 16mm
- Pays for itself with first bulk film order.

349

(Include 65¢ postage)



**35mm
FILM**

PLUS-X OR PANATOMIC-X

35mm x 20 exp.

3-ROLLS . . . 1.50

10-ROLLS . . . 3.95

35mm x 36 exp.

3-ROLLS . . . 1.80

10-ROLLS . . . 4.90

(Without Processing)



**35mm
BULK FILM**

PLUS-X OR PANATOMIC-X

DO IT YOURSELF AND SAVE!

28 ft 1.35

50 ft. 2.00

100 ft. 3.50

(Without Processing)

FREE: Empty cartridges in-
cluded with every bulk order.

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P.O. Box 243
New York 51, N.Y.

WEST
COAST

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Valley Village Station
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COLOR



WE ARE AS NEAR TO YOU AS YOUR NEAREST MAIL BOX
FOR YOUR CONVENIENCE, ALL SERVICES UNDER ONE ROOF

COLOR PRINTS

(From transparencies)

PRINTED ON NEW KODAK
EKTACHROME PAPER

5-2X (2 1/2 x 3 1/2) (from 35mm & 828) **100**

3-3S (3 1/2 x 3 1/2) (from 120 & 620) **100**

3-3X (3 1/2 x 5) (from 35mm & 828) **100**

Below sizes are Studio Mounted.

2-4X (approx. 4x5) (from 35mm & 828) **100**

Printed on Ansco Printon:

5x7 **95¢** each 8x10 **1.85** each
3 for 2.75 **2 for 3.50**

KODACHROME COLOR PROCESSING

*35mm x 20 exp. w/mounting **1.00**

*35mm x 36 exp. w/mounting **1.75**

35mm x 15 exp. Stereo w/mounting **1.75**

35mm x 28 exp. Stereo w/mounting **2.75**

MOVIE FILMS

8mm Roll **1.00**

8mm Mag. **.75**

16mm Mag. 50' **1.00**

16mm x 100' Roll **2.50**

8mm x 100' (Bolex) **3.95**

* 35mm Anscochrome, Super Anscochrome, Ektachrome: Same prices as shown.

120, 620, 127 Anscochrome, Super Anscochrome, Ektachrome **1.00**

A REAL TIME SAVER!

"1-TRIP COLOR OFFER"

35mm EASTMAN KODAK

Neg. Color-Kodachrome Type

WITH PROCESSING INCLUDED

AND

JUMBO COLOR PRINTS (Type C)

12 exposure roll

3⁵⁰ ea. • **3 for 9⁷⁵**

20 exposure roll

4⁵⁰ ea. • **3 for 12⁷⁵**

* Prices include film, processing of film, and 1-jumbo color print of each exposure

It's the newest COLOR FILM 8mm Ansco MOVIECHROME

HIGH SPEED • FINE GRAIN
COLOR DAYLIGHT • ASA 20



PROCESSING INCLUDED

8mm Roll
25 ft. Dbl.

Now available for
8mm Magazine
Camera Owners!

3-rolls **8.95** 3-mags **12.00**
10-rolls **28.00** 10-mags **38.00**

IT'S NEW! HIGH SPEED!

35mm Kodak Ektachrome

PROCESSING INCLUDED

Daylight ASA 160 or
Type B ASA 125

3-ROLLS

20 exp. 36 exp.

875 1425

10-ROLLS

20 exp. 36 exp.

2750 4250

DUPLICATE Color Slides

35mm Mounted
From Transparencies

*Your duplicates are actually made on
Kodachrome film!

20¢ each **10 for 1.50**

*And that's why only Lord can give you faithful reproduction of your treasured slides.

It's New HIGH SPEED! 35mm Ektachrome

Bulk Film

PROCESSING INCLUDED

28 ft. **21.95**

50 ft. **37.00**

100 ft. **70.00**

Specify Daylight or Type B

FREE! Mailing bags and empty cartridges. Specify preference for 20 or 36 exposures.

BLACK and WHITE

Send for FREE mailing bags and price list

PANCHROMATIC ROLL FILM

120, 620, 127

ASA

Day.-Tung.
80 64

10 rolls 2⁹⁵

CUSTOM DEVELOPING & PRINTING

Ultra fine grain finishing
and professional print
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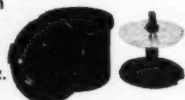
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BATTERIES

(Continued from page 112)

After the battery is discharged, it can be recharged many times by applying current to the terminals. The lead sulfate is broken down, the terminals are reconstituted and the sulfuric acid returns to its pristine state. The amount of charge remaining in the battery can be measured easily by testing with a hydrometer the percentage of sulfuric acid in the electrolyte. Such testing devices, in the form of small colored balls floating in a tube of the sulfuric acid, are often incorporated right into the electronic flash units. When the balls are floating at the top, the battery is charged. As it discharges, the balls begin to drop in the solution. When they reach a certain marked point in the tube, the battery should be recharged.

Debits of the wet cell

The lead storage battery, although low in initial cost, has several disadvantages. The battery must be kept charged when not in use; storage while discharged can damage it, and even if not used, it will slowly discharge when stored. Its life expectancy under the best of circumstances is limited to a few years. It is comparatively heavy for its electrical output. Lastly, the corrosive acid can damage wiring and other parts of an electronic flash unit.

The search for a lighter, longer lasting and less damaging battery led to the more expensive nickel-cadmium cell, a type being used today in more and more small electric flash units (see fig., page 80). Some are even made in D-cell size and can be used in D-cell units.

Enter the nickel-cad

In the nickel-cadmium cell, the positive nickelic hydroxide electrode becomes nickelic oxide during discharge while the negative cadmium electrode becomes cadmium hydroxide. The liquid electrolyte, potassium hydroxide, is not changed. Since there is no change it's difficult to determine the amount of charge in a battery. Consequently, few nickel-cadmium powered flash units have meters indicating the charge.

The nickel-cadmium batteries are close to the ideal, because these two metals require less chemical action than lead to produce the same amount of electricity. They can be stored uncharged—or charged—with no harmful effects. The sealed units used by most manufacturers need no refilling with water. They are long-lived and the companies manufacturing them claim that they can be recharged 500 to 5,000 times without loss of capacity. Most important, the electrical output remains constant

(Continued on page 118)

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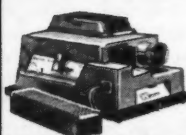
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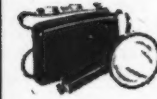
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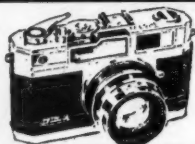
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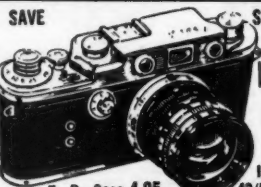
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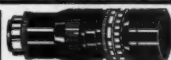
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BATTERIES

(Continued from page 116)

throughout the entire charge. This means that the electronic flash unit cycling time will remain constant, even toward the end of the charge. Light output also remains constant, as opposed to the dry batteries which have a steadily falling output.

In addition, the nickel-cadmium battery shows less local action. Local action is an internal self-discharge which causes the battery to run down even though no external current is drawn. Consequently, a nickel-cadmium battery will retain its charge for 6 to 12 months without recharging.

From what we've said, it's easy to see why you should take into consideration the type of power supply used in an electronic flash unit before you buy, and weigh your choice rather heavily upon the battery type, taking into account your needs, of course. Incidentally, although we've covered the major battery classifications, don't think you won't run into a few hybrids. The battery on the cover of MODERN this month is, for instance, a dry lead storage cell. However, the majority of units are generally of one construction.

The other side of the battery problem involves purchase of batteries, storage and maintenance for maximum efficiency.

We can leave out the rechargeable nickel-cadmium and storage batteries from any discussion of purchase. Nickel-cadmium units generally come with the flash units, and they can last up to 20 years (therefore shelf life in a photo store is hardly a factor).

But are they fresh?

The dry battery—D-cell, alkaline or mercury high-voltage cell—sets the real problem. How can you tell whether you are buying a fresh one?

Dating the batteries seems like an obvious start in the right direction. Unfortunately, only one or two manufacturers date their photoflash batteries. If you purchase batteries that are undated, it would help, at least partially, to pencil on the date you bought the battery. A small voltage tester can also be purchased to check the capacity of the batteries. Often, camera stores will have such testers available for a store check. A few other store hints: buy your batteries from a store with a large battery sale turnover, if possible. If not, buy from a cool store—one that's air-conditioned in summer. Avoid any store where the batteries are kept in a warm place.

If your new batteries are in good condition, the flash unit should recycle in (Continued on page 120)

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BATTERIES

(Continued from page 118)

about 10 seconds. When the cycling time reaches twice the original time, replace the batteries.

When your dry-cell batteries are not in use, store them in the refrigerator. Place them in a plastic bag and close it with a rubber band. The shelf life of the batteries will be prolonged, sometimes even doubled. By storing the batteries out of the electronic flash unit, you also save your unit from possible damage in case the batteries should leak while deteriorating. Of course, allow the batteries to reach room temperature before using them.

If you do have one of the older wet-cell storage battery units, you can prolong the battery life by keeping it well charged when not in use. If any appreciable time does elapse between the time the battery is discharged and the time that you charge it, part of the lead sulfate will not reconvert into its original form and the battery will lose some of its capacity permanently.

Atomic energy, anyone?

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Where do we go from here? Smaller, more powerful, but lighter weight batteries of nickel-cadmium or mercury or dry alkaline construction will appear. We've seen a few flash units now with batteries which are almost instantly interchangeable, thereby eliminating one of the primary-cell battery problems—low number of shots per charge. Keep a few spare batteries in your pocket, change when necessary, charge when you have time.

And then? And then there's atomic energy, of course. And it may not be long in coming, either.—THE END

The author wishes to thank the following technicians and their companies for original illustrative material and their cooperation in supplying technical information and checking: Fred Keller, Bright Star Industries; Frank Pipal, Union Carbide Corp.; E. Kaye, P. R. Mallory & Co. Inc., and Eugene Murphy, Sonotone Corp.



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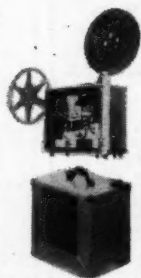
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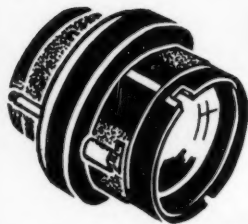
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POLAROID

(Continued from page 94)

more than half were made using everyday Polaroid Land roll film cameras and film. The subject matter includes cats, dogs, children, landscapes, seascapes, circus shots, funny portraits, a fine selection by Massachusetts housewife Mrs. Paul T. Seamans, appropriately called "Housewife's Album." These are not great photographs, but rather pictures amateurs would be pleased to take of experiences from their own lives.

There are also: a worthwhile collection of portraits by Philippe Halsman and a first-rate selection of pictures by Ansel Adams, who consistently uses Polaroid materials as a prime picture taking tool. Photographs by Leonard Balish and Harold Feinstein appear throughout many sections. Although these two highly skilled professionals used both roll film cameras and 4 x 5 material, the majority of their pictures were taken with a standard camera.

Some of the best pictures in the book were taken by author Wolbarst himself, including some highly dramatic circus pictures.

An introduction to the book describes the history of the Polaroid process and includes some invaluable information on how you can get better results.

All of this material is presented in a handsome package, designed by MODERN's Art Director Ernest Scarfone, bound in gold cloth, 9 x 12 in., and boxed. The large size and the excellent printing (this time by an American firm, thus destroying the myth that only the Europeans can do fine books) give the pictures a real chance to show off.

Nothing does it all!

In picture range possibilities and in quality results, the book demonstrates that Polaroid pictures leave little to be desired. As the author has carefully pointed out, there is no claim that the Polaroid can do everything. No single camera and no material can. But the Polaroid system does a great deal more than most people dreamed it could when Dr. Edwin Land first demonstrated his system a scant 13 years ago!

So, if you're a Polaroid user who is tired of hearing the guy next door tell you that his camera is superior because "Look at all those pictures in the various photo annuals taken with it," and if your Polaroid shots are good and his 35mm slides are terrible, buy a copy of *Polaroid Portfolio #1*.* Don't hit him over the head with it. He'll be shocked into respect by the excellence of the book itself.—JACQUELYN BALISH

*This and other books are available through AMPHOTO; see page 127.

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Dynamic Color Makes a Movie

There are very few color movies which really use color to heighten the dramatic action, but *Black Orpheus* is a magnificent exception. If its story grips you, it is largely because the colors in every scene have been chosen to soothe, startle, horrify or dazzle your eyes.

The movie was made in Rio, with an all-Brazilian cast, by the French director Marcel Camus. It is a modernized version of the Orpheus myth, in which Orpheus is a guitar-playing streetcar conductor and Eurydice a village girl who flees to Rio because a mysterious man has threatened to kill her. Marcel Camus has the advantage of a wonderful setting—the hills overlooking Rio and its streets in carnival time—but his use of the camera goes far beyond a mere recording of the picturesque.

In some sequences Camus establishes the colors he wants by his choice of backgrounds, objects or costumes. For example, there is an exciting sequence in which Orpheus and Eurydice, having just met, join in an impromptu neighborhood dance. Here Camus dazzles the eye with the strongly lit whites and yellows of the dancers' costumes, and brings the camera in close while they bounce up and down in frenetic rhythm.

In other sequences, Camus creates his colors by means of lighting. What makes us shudder when Orpheus goes into the morgue to search for his dead Eurydice? It's not so much the sight of the tranquil corpses as the cold white light in which the whole room is bathed. In a night scene where the mysterious man is chasing Eurydice down a hill, Camus does not hesitate to use frankly unrealistic lighting. Concealed floods, some white, some colored, catch the girl and the man in brief flares of light as they run past—a striking visual impression of stabs of fear.

It is not just in individual scenes that the colors are effective: the whole movie seems to have been composed in color "movements," like those of a symphony, to match the stages of the story. From bright pastels at the beginning, where Orpheus and Eurydice fall in love, Camus changes to garish primaries at the climax, where Eurydice is pursued and killed, and then to somber pastels at the end, where Orpheus searches desperately for his dead love. This skillful matching of color and action makes *Black Orpheus* not only an object lesson in technique but a powerful movie.—W.H.J.

GOOD PICTURES

(Continued from page 86)

standing in front of the entrance to the Weehawken ferry at 42nd Street in New York City; I went aboard.

"When I was very small I had often taken the same ferry with my family when we went to visit my grandmother in New Jersey. There had been lots of people and lots of cars; a man played the accordion, and you could get your shoes shined for a nickel. Now there were very few people and very few cars. There was no music and the man who shined your shoes charged a quarter. The waiting room in Weehawken was old and tired, but the elegance was still there. The stained glass windows, the carved stair posts, the ornate cornices, were all reminders of the fashionable past.

"A few days later I started photographing and I continued over a period of several months. Part of the story was later shown at the Museum of Modern Art in New York City, then at the Museum of Science and Industry in Los Angeles. After that experience, I knew what I wanted to do with my camera."

Since then Burden has completed two major essays: "Ellis Island," which was shown at the Museum of the City of New York and the Museum of Science and Industry in Los Angeles, and "God

is My Life," his impressions of a Trappist monastery near Louisville, Ky., which has been published as a book.

These essays, unlike those we are accustomed to seeing in *Life*, *Look* and other national magazines, have been completely conceived and executed by the photographer. Burden is a professional, but not strictly a commercial, photographer, since he has an independent income and does not depend on the proceeds from his photographs for his livelihood. For this reason he can choose his own subjects and pursue story ideas which interest him personally. He can take as much time as is necessary to thoroughly explore and cover his subjects. He can write, or select, his own captions and text, and he controls where, how and when the finished set is used.

Burden exercises the same care and discipline in technique as he does in composition. He is conservative in his choice and use of materials: for most situations he prefers slow or medium-speed films, which he exposes according to readings from a Weston meter (outdoors) or a Norwood meter (indoors) and develops by time and temperature in either D-23 or D-25. He prints on Varigam, with a minimum of dodging and burning in. His equipment varies in size from 8 x 10 to 35mm, but most of his work is done either with 4 x 5 or with 120 Hasselblads.—P.C.

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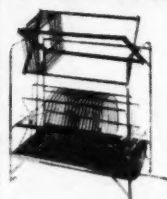
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LENS LIST

(Continued from page 91)

400mm f/5.5 Fern-Kilar. Kilfitt, Germany. Preset diaphragm, basic lens, \$249.50; adapters for EX-PC-TR, \$15; AL, \$24.50; RF, \$16.50; HA, \$20; LC (uncoupled), \$15

400mm f/5.5 Miranda Soligor. Allied Impex, Japan. Preset diaphragm, MI, EX, PC, \$229.95

400mm f/5.5 Rotar. Scopus Inc., Japan. Preset diaphragm, EX-PC-TR, \$179.95

400mm f/5.5 Tele Astra. Sterling-Howard, Germany. AL-AH-EX-HA-MR-PC-PK-AX-KA-KR-RF-TR, \$117.95

400mm f/5.5 Tele Astranar Follo-Focus. Sterling-Howard, Japan. EX-PC-MI-TR, \$77.50

400mm f/5.5 Tele-Megor. Hugo Meyer, Germany. Preset diaphragm, ES-EX-PK-TR, \$199.50

400mm f/5.5 Tele-Votar. Piesker, Germany. Preset diaphragm, basic lens, \$149.50; adapters for AL-AH-EX-HA-MR-PC-PK-AX-KA-KR-RF-TR, \$16; for LC-CX-NI (uncoupled), \$16; available in mount for Leica reflex housing

400mm f/5.5 Voss. Voss Photo, Japan. Preset diaphragm, EX-PC-TR, \$229.50

400mm f/5 Astragon. Sterling-Howard, Germany. AL-AX-EX-ES-HA-KR-MR-PC-RX-TR, \$129.50; with reflex housing, LC-CX-NI, \$133.50

400mm f/5 Fernbild. Astro, Germany. For all single-lens reflexes, \$245; with reflex housing, LC, \$395

400mm f/5 Telen. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$360

400mm f/5 Telen Follow Focus. Tewe, Germany. Gunstock mount, AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$335

400mm f/5 Telyt. Leitz, Germany. LC-LE-LM (requires Visoflex reflex housing), \$465

400mm f/4.5 Canon. Scopus Inc., Japan. LC (for use with reflex housing), \$471; adapter for Canonflex, \$35

400mm f/4.5 Tele-Ennalyt. Enna Werk, Germany. EX-PC, \$189.50

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400mm f/4.5 Tele-Votar. Piesker, Germany. Preset diaphragm, basic lens, \$220; adapters for AL-AH-EX-HA-MR-PC-PK-AX-KA-KR-RF-TR, \$16; for LC-CX-NI (uncoupled), \$16

400mm f/4.5 TV Fernlinse. Telag, Germany. EX-TR, \$360

400mm f/4 Sport Fern-Kilar. Kilfitt, Germany. Preset diaphragm, basic lens, \$469.50; adapters for EX-PC-TR, \$15; LC (uncoupled), \$15; AL-PC-RF, \$24.50; Visoflex II, \$15; heavy duty flanges for Kilarflex and Kilarscope reflex housings, \$15; AL-EX-HA-PC-PK-TR, \$24.50

400mm f/3.5 Actinar. Aetna-Optix, Japan. OP, price to be announced

500mm f/8 Kinegon. Kine Camera Co., Japan. Preset diaphragm, EX-PC-TR, \$149.50

500mm f/8 Voss. Voss Photo, Japan. EX-PC-TR, \$229.50

500mm f/5.8 Petri. Petri, Japan. Preset diaphragm, PC, \$199.50

500mm f/5.6 Tele-Athenar. Century, U.S.A. For all single-lens reflex cameras, \$259.50; for LC requires reflex housing

500mm f/5 Astragon. Sterling-Howard, Germany. AX-EX-ES-HA-KR-MR-PC-RX-TR, \$244.50; with reflex housing, LC-NI-CX, \$344.50; add \$12.25 for gray heat-reflecting mount

500mm f/5 Fernbild. Astro, Germany. For all single-lens reflexes, \$393; with reflex housing, LC, \$545

500mm f/5.5 Follow Focus. Novoflex, Germany. AX-EX-HA-MR, \$699.50

500mm f/5 Nikkor. Nippon Kogaku, Japan. NI (for Nikon reflex housing), \$550; adapter for NR, \$17.95, rotating, \$29.95; BO, price to be announced

500mm f/5 Takumar. Asahi Optical Co., Japan. Preset diaphragm, AH-PC, \$350

500mm f/5 Telen. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$450

500mm f/5 TV Fernlinse. Telag, Germany. EX-TR, \$450

500mm f/5.6 Dallin. Dallmeyer, England. HA, \$569

600mm f/11 Astranar. Encino Engineering, U.S.A. EX-PC-PK-TR, \$99.50

600mm f/6.3 Tele-Athenar. Century, U.S.A. For all single-lens reflexes, \$295; with reflex housing, LC, \$295

600mm f/5.6 Canon. Scopus Inc., Japan. For use with reflex housing, LC, \$550; adapter for Canonflex, \$35

600mm f/5.6 Fern Kilar. Kilfitt, Germany. Preset diaphragm, basic lens, \$599.50; adapters for EX-PC-TR, \$15; LC (uncoupled), \$15; HA, \$20; AL-PK-RF, \$24.50; Visoflex II, \$15

600mm f/5.6 Tele Rokkor. Minolta, Japan. Preset diaphragm, MS, \$550

600mm f/5 Astragon. Sterling-Howard, Germany. AX-EX-ES-HA-KR-MR-PC-RX-TR, \$375; with reflex housing, LC-CX-NI, \$475; add \$18.75 for gray heat-reflecting mount

600mm f/5 Telen. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$725

640mm f/5 Fernbild. Astro, Germany. For all single-lens reflexes, \$725; with reflex housing, LC, \$875

800mm f/8 Canon. Scopus Inc., Japan. LC complete with Canon reflex housing, \$796; adapter for Canonflex, \$35

800mm f/6.3 TV Fernlinse. Telag, Germany. EX-TR, \$750

800mm f/5 Astragon. Sterling-Howard, Germany. AX-EX-ES-HA-KR-MR-PC-RX-TR, \$495; with reflex housing, LC-CX-NI, \$599; add \$27.75 for gray heat-reflecting mount

800mm f/5 Fernbild. Astro, Germany. For all single-lens reflexes, \$895; with reflex housing, LC, \$1050

800mm f/5 Telen. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$750

1000mm f/11 Canon. Scopus Inc., Japan. For use with reflex housing, LC, \$750; adapter for Canonflex, \$35

1000mm f/8 Takumar. Asahi, Japan. Preset diaphragm, AH-PC, \$1195

1000mm f/6.3 Astragon. Sterling-Howard, Germany. AX-EX-ES-HA-KR-MR-PC-RX-TR, \$665; with reflex housing, LC-CX-NI, \$765; add \$33.25 for gray heat-reflecting mount

1000mm f/6.3 Fernbild. Astro, Germany. For all single-lens reflexes, \$1100; with reflex housing, LC, \$1250

1000mm f/6.3 Nikkor. Nippon Kogaku, Japan. NI-NR-BO, price to be announced

1000mm f/6.3 Telen. Tewe, Germany. AL-AH-AX-EX-HA-KA-KR-MR-PC-PK-RF-TR, \$1100

2000mm f/10 Fernbild. Astro, Germany. For all single-lens reflexes, \$4500

2000mm f/10 Telen. Tewe, Germany. With reflex housing, LC-CX-NI, \$3500

2000mm f/8.8 Telen. Tewe, Germany. Mirror optics. EX-HA-PC-TR, \$3500, incl. special tripod

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40-in. f/8 Reflector. Zoomar, U.S.A. Mirror optics, for single-lens reflexes, reflex housings, \$1200, basic price. Fitting, cost of reflex housing extra, consult mfr.

80-in. f/15 Reflector. Zoomar, U.S.A. Mirror optics, for single-lens reflexes, reflex housings, \$1700, basic price. Fitting, cost of reflex housing extra, consult mfr.

100-in. f/20 Reflector. Zoomar, U.S.A. Mirror optics, for single-lens reflexes, reflex housings, \$2000, basic price. Fitting, cost of reflex housing extra, consult mfr.

150-in. f/25 Reflector. Zoomar, U.S.A. Mirror optics, for single-lens reflexes, reflex housings, \$3200, basic price. Fitting, cost of reflex housing extra, consult mfr.

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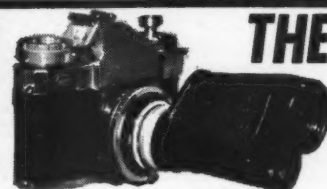
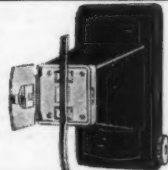
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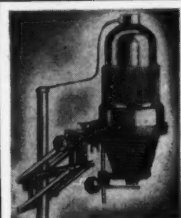
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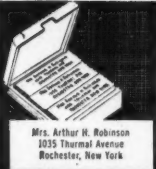
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MONOCULAR

(Continued from page 65)

ments and/or deep built-in lens hoods. All present monoculars are designed to be used with series V adapter rings or series VI with adapters.

We predict that special step-down adapters will soon be made to allow the monoculars to be used with the large diameter (Series VII) lenses. Present step-up rings are not practical since the rings move the monocular too far away from the front lens element.

The built-in sunshades used on many lenses, such as the 58mm f/2 Biotar, present another problem which is more difficult, if not impossible, to solve. The shades physically prevent the monocular body from moving close enough.

What happens when a monocular isn't close to the camera lens? The edges disappear. The further away the monocular gets, the more vignetting occurs.

The ins and outs of focusing

Once you have the monocular fastened onto your camera, the battle's almost over—almost, because focusing may cause you some trouble. Central split-image rangefinders are virtually useless since one half of the circle will be dark or even black when the monocular is attached. You must rely on the ground-glass focusing only. In our tests, the image produced by the f/14 or so lens was too dark to focus accurately indoors. However, in average outdoor light, it was relatively easy work. If you have a reflex featuring a clear outer focusing area—a Voigtlander Bessamatic or Zeiss Contaflex—you have an additional asset, if you use it properly. The entire picture through the monocular will be brilliant even in dim light. You'll note, however, that the clear portion of the screen which usually shows the picture area sharp at all times now becomes a full focusing screen. Here's why: you are focusing without a ground glass just as you would if you were looking through a monocular or pair of binoculars yourself. It's rather dangerous to rely on this outer area for focusing, no matter how bright and seemingly convenient. Your eye has the ability to accommodate slight errors of focusing when looking at an aerial image. The film won't, however. So use your outer area for rough focusing and viewing but stick to the central ground-glass area for accuracy.

As with standard teles or long focal lengths, you will still get the best results with a monocular if you use a tripod. Two models (see table, page 64) have tripod sockets. The Spiratone models (least expensive of those available) have a socket which, strangely enough, is unusable, since the entire unit must be turned for focusing.—E.M. and H.K.

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4 1/4" Reflecting Telescope—up to 255 Power
Stock No. 85,006-M\$74.50 F.O.B. Barrington, N. J.

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TAKE AND SHOW YOUR OWN CINEMASCOPE WIDE-SCREEN 8mm MOVIES WITH THIS LENS SYSTEM.



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FOR TRICK PHOTOGRAPHY

Take "double-exposure" photographs in one shot. Operation is simple. Mount or hold the beam splitter at a 45 degree angle to your camera. You will be able to take a picture of objects straight ahead, and simultaneously, objects at right angles to the camera. Or the beam splitter can be turned to photograph objects straight ahead and objects that are above the camera, also in one shot.

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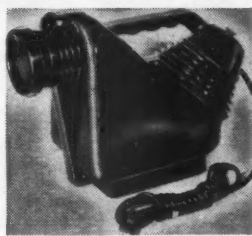


Bracket attaches permanently to reflecting or refracting telescopes. Removable rod holds camera over eye-piece to take pictures of Moon... or terrestrial telephoto shots of distant objects. White metal projection screen permits you to see the sun directly! Includes brackets, 28 3/4" rod, projection screen, screws, directions.

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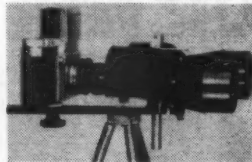


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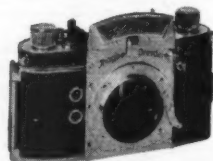
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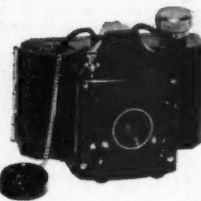
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